

REPORT

ON

DEVELOPMENT OF MOUNT ALU

BY

A. E. MIRAMS, Esq., F.S.I., F.R.S.I.,

Consulting Surveyor to the Government of Bombay



DELHI
GOVERNMENT CENTRAL PRESS
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This report is for various reasons not as comprehensive as I should have liked but a great deal of research work has been devoted to the report. However it is not so full as I should have liked, owing to a variety of circumstances over which I have had no control.

2 The funds at the disposal of the Rajputana Agency were very restricted but this particular fact has not materially affected the treatment of the subject as regards the particular matters with which the report itself is concerned. The absence of funds has prevented me from presenting the report with printed matter and plans as I should like to have done. A report in manuscript, when dealing with a variety of subjects as comprehended by a Development Scheme, is always unsatisfactory.

3 Generally my remarks have been divided into five heads —

- (1) Traffic Communications
- (2) Building sites
- (3) Improvement of bazaar area
- (4) Brief notes on water-supply
- (5) Summary

4 Mount Abu is a hill station situated 4 000 feet above the sea level. It is frequented by officials and residents of the Rajputana States, and to a certain extent by others who find their normal occupation in Ahmedabad and other parts of Guzerat and to a still less extent on comparatively rare occasion by people living as far away as Bombay. It is the Headquarters of the Rajputana Agency and a holiday resort of many of the Rajputana Princes.

5 In conformation it may be said to partake somewhat of the nature of a semi plateau broken up by a series of precipitous hills, with the result that there is a comparatively small proportion of land naturally available as building sites. Roughly, the hill may be said to have an all over area in so far as that part, which is said to be habitable is concerned, of 2 000 acres.

6 A detailed description of the hill is contained in the Gazetteer and it is neither necessary nor desirable to recapitulate or to attempt to enlarge upon such description in a report of this nature. Suffice it to say that except during the rainy season which extends from the

middle of June to the middle of October, the hill is admirably suited for residential purposes throughout the year. It goes without saying that from a commercial point of view apart from the benefits conferred by its excellent climate, it is negligible but it is a magnificent hill station with peculiar and unrivalled scenery. Furthermore, it is not difficult of access as it can be reached by motor from Abu Road station, which is only 17 miles distant. The hill is provided with an excellent club known as the Rajputana Club, quite a good cricket ground and a first class polo ground, and there is room for improved hotel accommodation. The configuration of the hill does not lend itself to the provision of such roads as would be suitable for vehicular traffic, and the powers that be would be wise not to attempt to provide for such traffic apart from the facilities given to motors running to and from various parts of the hill on the arrival and departure of visitors.

7 When treating of traffic improvements in this report, I have supported the proposals to construct two new main roads, which I refer to in the report as the 'Pilgrim Road' and the 'Four mile Chukkar Road' for want of a better known description. Both these roads will of course be suitable for the usual vehicular traffic as well as for motor traffic travelling not more than an average of 15 to 18 miles per hour and it will be a matter for administration as to whether these roads together with the main Abu Road should be allowed to be so used. Only those roads within the realms of practical politics have been suggested, and generally speaking the cost of such roads will be reflected in the increased value of the lands sold. This remark applies with particular emphasis to branch roads giving access to new building sites. In the case of the Pilgrim Road and the Four mile Chukkar Road, which are really arterial, not much could be expected from sales of the adjoining properties and it is only fair and proper that the public in general should contribute towards the cost of their construction.

8 The problem I set myself was to find with a certain amount of accuracy lands which might be made available for the erection of bungalows and the provision of access thereto. These points are dealt with at length in the body of the report under their respective heads.

9 Another matter of considerable importance to Abu is the improvement of the existing bazaar and the development of lands coterminous therewith. There can be no two opinions as to the importance of this subject, and the photographs accompanying this report will give some idea of lands near the bazaar which can, as I shall show, be readily developed with a two fold object of improving the sites from a sanitary point of view, and the provision of additional building sites for the existing residents in the bazaar area as well as for shopping purposes.

10 Finally, it is not a serious matter and the statement I attach to this report will show that the whole of the improvements can be carried out with a net cost of less than Rs. 10,000. I have made a particular reference to the provision of new latrines as I am most emphatically against the continuation of the existing type of kutcha structure which is hideous, inconvenient and approaches the insanitary.

11 A note on the finances of the water-supply scheme already under consideration, which appears in the report is self explanatory, and it may be sufficient here to state that under the scheme it is estimated by me that water could be supplied on the basis of cost at Rs 1-8-0 per 1000 gallons. The Public Works Department arrived at a figure of Re 0 11 0 whereas the average cost by bhusties has been stated by the P W D to be Re 5 per 1,000 gallons for a regular supply for the whole year. These figures speak for themselves and are a refutation of the claim made by certain people that inasmuch as the majority of bungalows already have their own wells, it is not necessary to provide for a municipal water supply, but the conveniences attached to a regular pipe supply as against the supply from wells is so obvious that apart from the saving involved it is unnecessary to argue the question.

12 There is one other small point which might be referred to with advantage viz, the proposal to remove the incinerator and the contractor's yard from their existing position flanking the main Abu Road. It is a depressing and objectionable feature, which at once strikes the visitor, on his approach to Mount Abu, to be confronted with the incinerator used for night soil and rubbish and the unsightly contractor's yard. I propose that the incinerator should be to the north of site No 40 in the valley of Nadi. Easy access to the road could be made to the west of site No 40 breaking off from Abu Road at mile No 1/3, which is about the same place the Pilgrim Road takes off. This would entail a road for as much as 1,200 feet in length, and the incinerator will then be at a distance of 1 6 miles from the station as against a mile at present. It will then be constructed at a height of 3,730 feet and some 130 feet below the level of site No 40 and I do not think, it can be suggested that even this latter site would be seriously affected. The low lands adjoining the above site might with advantage be used for purposes of night soil trenches and the resulting manure disposed of to cultivators.

13 Passing along on his way to Abu the visitor skirts the area which is in the immediate vicinity, which I call as the "bazaar area".

14 Accompanying the report, are the full plans showing the improvements proposed. The building site proposals result in a total area of 375 acres being made available. It might here be remarked that the Executive Engineer had estimated 578 acres for building sites and it is not clear how this figure is arrived at. From the foregoing remarks it is apparent that I am not in agreement with him. I have selected a further three sites with a total area of 20 acres. The report deals with the question of development of these sites in detail and the estimates thereof.

15 It should be understood that the value appearing in the valuation statement of building sites is intended to represent the value of the land apart from a ground rent of Rs 20 per acre per annum which I gather it is desired to levy on all building sites, in other words the

value stated if it is desired to arrive at the fee simple value, should be increased in every case by approximately from Rs 300 to Rs 450 per acre

16 The conditions of leases should include in addition to the payments of premium and ground rent provisions against closing or diverting nullas without the permission of the Municipality. The mining and mineral rights should be reserved to Government except in so far as the lessee might have the right to quarry stone or material for actual use on the site for the purpose of erecting a bungalow or developing the land

17 There is just one other point in connection with building sites which might with advantage be mentioned here viz the question as to whether the sites on the Nakhi lake should or should not be developed. The Municipality has I understand resolved to withhold the disposal of these sites for the time being on the ground that water in the lake might be contaminated as the result of their use. There are only five or six sites at the most and they are very difficult of development and not likely to find ready purchasers. Apart from the contamination of the lake there is just the other point and it is not an unimportant one viz that of the aesthetic and if buildings are allowed to be erected the elevations should be submitted to a keen criticism before construction takes place. It is possible to have an attractive and handsome building put up which could add to the appearance of the neighbourhood as a whole and enhance the general view of the lake. On the other hand an unsightly building might easily be an eye sore.

TRAFFIC COMMUNICATIONS

The detailed description of the several building sites indicates that some of the sites are actually on existing roads e.g. those on the Abu Road the High School Road the Anadra Road and the Sunset Point Road and consequently very little if any expense is called for in providing communication to them. Of the total of 62 sites 21 are more or less adjacent to existing roads. The remaining 41 must be provided with suitable approach roads and I discuss these after giving a description of the proposed arterial or traffic roads which may be designated. The Pilgrim Road and the Four Mile Chakkar Road respectively for want of a better nomenclature.

I do not consider it desirable to make more than a couple of important recommendations in respect of the construction of the two main traffic roads viz (1) the Pilgrim Road and (2) the Four Mile Chakkar Road. Sundry alignments have been suggested from time to time and prepared by the Executive Engineer at Abu.

The general construction of the Pilgrim Road is more or less physically fixed but a close examination of the proposed alignment has led me to make certain recommendations which in my opinion will result in an improvement. I refer to this road hereafter.

Apart from these two main thoroughfares, there would be need to construct subsidiary roads (throughout the Report I will refer to them as "branch roads") These branch roads number in all nine. They are essential for the development of building sites in the immediate proximity. The total length of these branch roads is 8110', and the estimated cost of construction is Rs 27,700. Generally, I have provided in my estimates for these branch roads to be 20 feet in width and carpeted with 6 inches of metalling 12 feet in width. Their alignments have been naturally selected on the easiest possible gradients. They may all be said to be suitable for vehicular traffic. In addition to the above nine branch roads it will be necessary, if access is to be given to plots 26, 27, 28 and 39, to construct three other branch roads, but I do not recommend their construction for the reason that they will have to cross a very wide nulla locally known as "Nadi" (the name itself indicates the width of the nulla), and the culverting or bridging of such a nulla would be so expensive as to, in my opinion, render the construction of the roads uneconomical. It might appear superfluous in view of these remarks to make any reference to the proposals, but the fact is that the four building sites are within a reasonable distance of the proposed Pilgrim Road, and will be available hereafter when all other lands are disposed of. In addition to the new construction, I make sundry suggestions for improving two existing roads. I have numbered these branch roads from 1 to 9 and they are shown on the plan in red, each road having its own identification No. in a green circle on the alignment.

THE PILGRIM ROAD

This road when made will ultimately be a very important thoroughfare, and its construction calls for no justification. Its user will primarily be for traffic quite unconnected with the building sites it incidentally gives access to. The advantages to be conferred by its construction are so well recognised, that there is no need to dwell on them in this report. As the title indicates the road will provide for vehicular access for pilgrims to the celebrated Dilwara temples. It will further greatly shorten and improve the approach to the Alwar. I state

A regular project has been worked out in detail and an estimate amounting to very nearly a lakh of rupees, for improving the existing track and aligning the road has recently been submitted to the Government of India. The existing Pilgrim Road starts from a point on the Abu Road adjacent to the Abu High School Road and ends near the Dilwara temples. Bridged at three places in order to cross big nullas, it is nevertheless just a rough track not more than 5 feet wide on an average, and usually no more than a rough footpath and only passable for pedestrian traffic.

I have carefully inspected the proposals, with which I generally agree. It is however possible to reduce the cost of construction by effecting certain changes as stated below.

Prima facie an appreciable saving could be effected by reducing the width of land to be acquired for the road. It is true a greater portion of the road will pass through Government land but almost 4 000 feet length passes through private land mostly culturable and a 10 width between road boundaries instead of the 80 contemplated in the Scheme would result in reducing the acquisition from 10 acres to about 7 acres which at the average rate allowed for, of Rs 600 per acre would amount to Rs 4 200 instead of Rs 6 000 thus effecting a saving of Rs 1 800. It need not be pointed out that the actual formation of the road should not be more than 20'—the Abu Road is not more than 21 on an average—and a 15' extra on either side will unless the road is in a heavy bank where the width could be locally increased be found quite sufficient for future widening etc. Anything approaching 80' or 100' (as proposed in an earlier report on the subject) is absolutely unnecessary and would be wasteful in the extreme.

Apart from the consideration of the several approach roads to the sites on the right and left of the new road which will be discussed hereafter I generally agree with the realignment which commences at mile No 1/2 of the main Abu Road 930' due north of the take off of the existing Pilgrim track. This is the most suitable point of contact for this purpose. The course of the alignment upto chainage 2 500' i.e. upto a point 450 south of the bridge towards the east of the Nilkantha Mahadev Temple near site No 25 is unobjectionable. In view of the fact however that the existing bridges which are only meant for pedestrian traffic are to be replaced by new ones capable of taking a 5 ton running load it is not obligatory to restrict the alignment so as to pass over the existing bridge and a 30 more towards the west as regards the actual crossing of the nullah and a change in the further course of the alignment as far as the Torna village chainage 3 600 as shown in plan No 853 would result in less acquisition less height of bank and consequently a reduced ultimate cost.

With regard to the curved portion actually falling in the Torna village and the further course of alignment between chainage 3 600 and 4 200 or in other words between the Torna and the Gora Ghuppra villages I suggest a radical change from the existing proposals from a practical point of view. The existing portion of the road between these two villages sweeps round the south west side of Mr Sharafuddin's house and I see no necessity for the costly diversion which has been proposed through private agricultural lands towards the east of this house involving costly acquisitions and claims for severance and a heavy bank for over 800 length. It would result in a clear straight reach of road much favoured by motorists but it is not justified from an economic point of view. The existing road gradients are quite good between the two villages referred to and all that is necessary is to widen the road where necessary, which will not be a costly affair in view of the good ground for the greater part of this section. The curve passing through the Torna village could with advantage be moved 25 westward of the proposed alignment so as to properly link up the

two portions at its extremities and to keep within practicable grades. Proceeding further ahead of the Gora Chuppra village, the existing Pilgrim Road overlaps the road going north west to the Military barracks, for about 200' length and then suddenly sweeps down towards the north east in a null between two high hills and then taking a sharp turn towards north west below pillar No 10 of the Cantonment limits, rises up through broken land for about 400' and finally crosses the ridge through a saddle in the hills and emerges on the plains towards the north between the Alwar site and site Nos 2, 3 and 4 situate towards the east of Bikaner House. The proposed alignment for this portion allows of a little more flattening up of the 'S' curve towards the north east of the Gora Chuppra village, if a little greater expenditure is possible. If economy is urgent, I do not press the point as being essential. The further course of the alignment along the side of the 'null' towards the left, would necessitate the construction of a retaining wall on the down stream side almost upto the saddle (chamage 6,700) and seems to be the most practicable line to be followed. I agree with the alignment between this saddle and the ridge further north east i.e., between chamage 6,700 and 7,900, although it passes through low land and would consequently require a heavy bank, as the road would then be better situated with regard to the sites on its flanks, I refer to the Alwar site on the east and site Nos 2, 3 and 4 on the west and Bikaner House which would also derive no inconsiderable benefit from this road. The final section from chamage 7,900 to 9,516' (where it joins the Abu Ori Road), falls entirely outside the leased area and is consequently within the Sirohi limits. I recommend that the curve near pillar No 4 should be slightly moved towards the south west, as well as the further alignment, as shewn in plan No 1, which would result in improving the curve and also reducing the bank by an appreciable amount. The total length of the road will be 1.85 miles and the cost of its construction is estimated to be rather under a lakh of rupees. This total cost will be recoverable in part from plots developed by the road as building sites. Such part measured by the accruing increment is approximately Rs. 36,000 (including the capitalized ground rent).

It is understood Rs. 20,000 is to be, or has been contributed by His Highness the Maharaja of Alwar and Rs. 40,000 will be received from the Jain Community.

In this way practically the whole lakh will be recovered.

THE FOUR MILE CHUKKAR ROAD.

I think it is desirable that what might be termed the eastern side of this Chukkar Road should be made into a prominent roadway preserving generally its present alignment which exists as a rido or peth from the Dak Bungalow going in the north easterly direction through Kumharwara and meeting the Pilgrim Road at chamage 5,000. At this

point its length is about 2,300' and further on it preserves the same alignment as the Pilgrim Road for a distance of about 700'. It then branches to the right or north east and continues on to near the southern boundary of the Alwar Estate, it continues more or less parallel to the eastern boundary of that Estate for about half its length.

Apart from a question of traffic, it is doubtful whether the continuation of this road to the north and then round to the east meeting the Dilwara Temple Road would serve any useful purpose and for that reason I refrain from making any proposals with regard to the development of this particular road. The total length of the proposed road to be constructed would be about 5,800' at a cost of Rs. 15,000. The construction of this road will form a very important improvement. It should be 20' in width, 12 to the south east of the alignment being carpeted by 6" of metal and 8 feet on the north west being graded and kept as a ride. I am conscious of the fact that this alignment will not show any great financial return on the lands immediately developed by this road as only 10 or 11 plots will be directly affected.

BRANCH ROAD No 1

The object of this road is to connect plots Nos. 43, 44 and 45 with the Main Abu Road. It follows practically the alignment of the existing track and its construction is therefore a simple matter. The length is 550 feet and the cost of constructing a 20' road with 12' metal surface would be in the neighbourhood of Rs. 1,000 only.

BRANCH ROAD No 2

This is a branch breaking off the immediate southern end of the Pilgrim Road passing in the north westerly direction giving access to plots Nos. 32, 33, 34 and 35. The total length of this branch is 1,200 feet and the estimated cost of construction is Rs. 3,000. The only alternative to this access would be by means of culverts across the nullah which intervenes the site and the Abu Road. The culverting is much more expensive than the road construction.

BRANCH ROAD No 3

This road practically means reconstruction of the first 2,000' of the existing Gwalior Road a track hardly 8' wide so far improving the alignment and grade with a view to make it suitable for vehicular traffic. The alignment suggested which is designed to give access to site Nos. 49, 52, 54, 55 and 56 breaks off from the Abu Road from a point 200' south-east of the existing road, will be found to be both easy and economical. The total height ascended in the 2,000' length is about 100' and the estimated cost of constructing a 20' road with 12' metal surface would be in the neighbourhood of Rs. 10,000 inclusive of the three small culverts on the way. The alignment will however not show any great financial return on the lands developed by it as only 5 plots will be directly affected.

BRANCH ROAD No 4

This is intended to connect site Nos 61 62 and 63 with the Abu High School Road. The total length proposed to be constructed is 900' of a 20' width with 12' metal surface and the estimated cost inclusive of the two nulla crossings would be about Rs 3,000.

An extension of this road by the west side of site No 63 is the only means of providing access to site Nos 65 66 and 67 further south west but the proposal would be financially impracticable by reason of the intervention of the very wide Kudra nulla. These sites also, Nos 68 and 69 to the south of Abu High School are rather out of way and for reasons stated above re the difficulty of providing access are not likely to find a market unless others are disposed off. The only way to provide an access to site Nos 68 and 69 is by reconstructing the old cart road from where it breaks off from the Abu High School Road to a distance of 600' and by providing a branch road 600' length from this point to the sites on the west.

BRANCH ROAD No 5

The object of this branch road is to connect site Nos 23 and 24 in Kalsahpra with the Pilgrum Road. It starts from the north east corner of site No 25 (approximately 1 mile from Abu Road) and runs southward along the foot path on the northern boundary of site No 25 and across the agricultural land upto the foot of the Kalsahpra hill. The length is 560' and the ground is quite plain. The estimated cost of construction of a 20' wide road with 12' metal surface inclusive of the 3 gunthas of agricultural land to be acquired is approximately Rs 1,200.

BRANCH ROAD No 6

The road gives access to site Nos 29 and 30 and the alignment shown is the only one practicable owing to the very difficult nature of the ground on other sides. The road is designed to follow one of the approach roads (length 250') to the block of outhouses to the east of the Tahir and continues along the slope of the hill in the north westerly direction to the north west corner of site No 30. The total length of new construction would be 850' and the grade will not be severe. The estimated cost of construction for 20' width with 12' metal surface is Rs 2,500.

BRANCH ROAD No 7

Intended to give access to site No 20 adjacent to Golf links. Length 500'. Estimated cost of making a 20' road with 12' metal surface is Rs 1,000.

BRANCH ROAD No 8

This is a branch breaking off the 4 miles charlar road from a point 2,700' north east of its bifurcation from the Pilgrum Road to the south of Gora-chuppra village and intended to give access to site Nos 11 and

12. It traverses fairly good ground and has to cross two very small nullas which could be slabbed over. The estimated cost for the 700' length proposed to be constructed of 20' width and 12' metal surface is approximately Rs. 2,000.

BRANCH ROAD No. 9

This breaks off from the Pilgrim Road (realigned) from a point due west of the military well situated to the south west of the Alwar site and is intended to connect up sites Nos. 2, 3 and 4 with the Pilgrim Road. The total length proposed to be constructed is 850', and the estimated cost of construction is Rs. 2,000. Although the road has been designed to serve the sites severally, it is very likely that the three sites may be sold in a group in which case the length of the proposed road would be shortened by more than 2/3 of its length, leaving only a nominal length to be constructed, which it may be found convenient to leave to the purchaser. The foot-path from the Bikaner House would in this latter course have to be diverted at Government cost, so as to get clear of the sites.

IMPROVING EXISTING ROADS.

I have not considered it necessary in the limits of this report to deal with the improvement of the existing roads; such improvements would be in the nature of widening where necessary.

THE LAKE HOUSE ROAD.

I permit myself a remark on this road to the effect that the first 700' length of this road from the Lake House to the foot of site No. 71 to the north-east should be widened to 16', and the abrupt change in grade at the end of this length removed, so as to provide a good vehicular traffic road to site No. 71. The cost of improvement is expected to be in the neighbourhood of Rs. 500 only.

THE SUNSET POINT ROAD.

The 1,600' portion west of the Residency lawns from the junction of two roads to the point where Bayley's walk takes off from the road is already fairly good but needs resurfacing, which I think could be done at a cost of Rs. 500 for a 3" metal surface over 12' width.

It speaks well for the Administration that I have not felt called upon to criticise any of the other roads in the station, which are all generally in very good repair and of reasonable alignment.

VALUATION—BUILDING SITES

In arriving at the site values of individual plots it has been necessary to take into calculation generally eight important factors:—

- (1) Situation of the locality and existing development.
- (2) The area of building lands by comparison to the area of the whole plot.

- (3) The contours
- (4) Water supply
- (5) Distance from developed area
- (6) Altitude and prospects
- (7) Available garden lands.
- (8) Existence of trees or wood lands

Each of these factors naturally play an important part in the hypothetical purchaser's decision as to the amount that he would pay for certain building sites, and an attempt has been made to average out the views of the market in deciding just the right proportion attributable to the values in respect of each of these factors and it was a most difficult problem as the values had to be so equitably adjusted as to give proper consideration to each of the items

However, an attempt has been made to achieve this end with the results indicated in the general list of values of plots which appear in the appendix No 1. When discussing the merits of the plots and the opinion expressed that one plot is better than the other, it does not necessarily mean that the rate per acre of the first plot is greater than the second, for in the case of a very small and compact plot it might be eminently suitable for the erection of a small house without much wastage of surplus lands, whereas in the case of a larger plot, it would be more suited for a more pretentious development

A very careful consideration has been paid to the merits of individual sites, and the valuation shows my estimates of the values of those sites as they exist to day and as they would be after the construction of the roads indicated in another part of this report

It must be clearly understood that the values shown presuppose the existence of a certain market for the land. To all intents and purposes no lands have been in recent years either sold or leased, and it is a matter of speculation as to what the market would be like assuming the property is put up for auction. However, the prices given may be taken as being the present day rates, and immediately the plots are sold the areas in the neighbourhood would tend to slightly rise in value. It may generally be stated that the total value of the lands shown as building sites represent their value today on the assumption that the roads proposed have been constructed

I attach in the form of an appendix (No 2) a complete list of all the building sites in numerical order with a brief description of the individual boundaries, which could be suitably printed for circulation to intending purchasers and used with advantage in conjunction with the small scale map I have prepared for general use. This 6" map shows all the building sites as well as all existing bungalows

FINANCE

I also attach to the report appendix No 3 which takes the form of a financial summary giving the cost of carrying out the development of

the building sites as well as the incremental value resulting from such development. From this statement it will be seen that the total incremental value of the lands developed amounts to Rs 36,400 to which must be properly added Rs 89,600 the capitalized ground rent accruing from such development. These two figures amount to Rs 1,26,000. On the debit side the expenditure totals Rs 1,29,000 but naturally includes the cost of construction of what may be properly termed unimmaculate roads as for example the large part of the four mile chukkar road and a considerable portion of the Pilgrim Road. Neither the debit nor the credit side has been discounted on the basis of actual development and disposal, for it is perfectly clear that it would be only a waste of money to construct more roads than are absolutely necessary to meet the current demand as it arises and in the same way it would be wrong to assume that increments will be immediately payable without the construction of roads or indeed even assuming they are all at once constructed. Actuarially therefore it will be quite wrong to include the total value of all the building plots in the Municipal balance sheet as an asset at the figure of Rs 4,30,000 and it is quite beyond the powers of any valuer or actuary to state with any accuracy what figure should be adopted for such a purpose. The most that could be done is to defer the total value for a period of years during which it might reasonably be supposed that the lands would find purchasers in the market. If we take an outside estimate of such a period say 20 years then the present value of building sites might properly be stated at Rs 2,40,000 and it would be reasonable on this basis to take the present cost of development assuming complete construction in 16 years. This would reduce the present value of this expenditure to Rs 87,650. In this way the difference between income and expenditure is Rs 1,52,350.

BUILDING SITES IN DETAIL

In the absence of any particular nomenclature to the sites I have attempted to classify them in groups more or less defined with respect to their general relationship to known roads or localities. These groups are 8 in number and in addition there are a few isolated cases of individual plots.

The eight groups

- 1 The Bikaner Group
- 2 The four miles chukkar group
- 3 Golf Links group
- 4 Kahi Chappra--Torna group
- 5 Tahsil group
- 6 Abu Road group
- 7 Gaomukh Road group
- 8 Abu High School group

The number given to the site in this report corresponds with the site number on the plan

Site No 1

Area	8 acres.
Locality	Four-mile chukkar road
Distance by Road from Post Office	1.85 miles
Approximate altitude of the positions for building	3 680 feet.

The site is situated to the north-east corner of Alwar site and is bounded on north east and partly on the west by the four mile Chukkar Road and on the south and partly on the west by the Alwar site. It consists of a high hill with rapidly falling slopes and fairly good ground for building on the top, which commands extensive views all round. The difficulty of water supply and the out of the way position of site which latter renders it difficult to provide it with a pucca access to site are however detractive features. Value 500 rupees per acre.

THE BIKANER GROUP

Consists of sites numbered 2, 3 and 4 and is situated to the east of Bikaner House, extending as far as the existing Pilgrim Road on the east. The group has the peculiar advantage of being in a more or less developed locality, has a potential access over the northern portion of the Pilgrim Road and has a well in the vicinity for water supply. A pucca access over a 20' road (Branch Road No. 9) is being provided for under the scheme in order to connect the sites with the proposed Pilgrim Road which runs close by on the east.

Site No	Area acres	Distance by road from P. O. mile	Altitude	Value as existing per acre	Value as developed per acre
				Rs.	Rs.
2	3	1.43	3 880	850	1 100
3	3	1.42	3 880	800	1 000
4	30	1.42	3 880	820	1 025

I consider site No. 2 as the best owing to its higher altitude and commanding position. Next in importance come Nos. 4 and 3 respectively, the former of which has comparatively better ground for building.

Site No. 5—Area 7—12 acres. Distance by road from post office 1 mile. Approximate altitude of position for building 3,880 feet. This is a nice high site situated on the Pilgrim Road to the east of Gora Chuppre village. The site commands extensive views all round, but the rapidly falling slopes would necessitate terrace development for the sides, and a

certain amount of levelling at top. This is a case where the actual building area is restricted on account of the rugged slopes especially on the north and west. The burial ground to the east is very much lower and the drawback is more apparent than real. The site has a ready access on the Pilgrim Road and facilities for a well on the nullah to the north-east.

Value as existing Rs. 800 per acre.

Value as developed Rs. 900 per acre.

THE FOUR MILE CHUKKAR GROUP

Consists of site Nos. 6 to 16 inclusive. In all 11 sites with an aggregate area of 66 acres. The group is situated to the south-east of the Alwar site and with the exception of site Nos. 11, 12 and 16 all the sites are directly on the four mile chukkar road. Of these plots 6, 7, 8, 9 (of which 6, 7 and 8 are coterminous with the eastern Alwar boundary) are situated to the west and the remainder to the east of the road. They have thus a kutchia access at present, which under the Scheme, I am proposing to convert into a metalled road 20' wide. I refer to this under the chapter on "Traffic communications". Branch road No. 8 will provide access to sites Nos. 11 and 12 which are situated at a distance from the road towards east.

Site Nos.	Area acres	Distance by road from P. O. miles	Altitude of position for building	Value as existing per acre	Value as developed per acre
				Rs.	Rs.
6	4.86	1.58	3,900	550	700
7	3.75	1.43	3,860	650	800
8	3.6	1.36	3,840	750	950
9	3.5	1.28	3,820	800	750
10	5.5	1.5	3,800	540	775
11	7.2	1.72	3,780	700	775
12	6	1.55	3,830	500	750
13	3.25	1	3,830	700	850
14	4	1	3,420	800	1,000
15	3	1	3,815	800	950
16	3.2	1.5	3,870	800	

Sites 6, 7, 8 and 9—Are more or less uniform as regards amenities. No. 8 is the best as it has the advantage of possessing plenty of good building ground. Next in order of merit are Nos. 7, 9 and 6. Costly,

provided with an access—branch road No 7 under the scheme. The well in front of the Dak Bungalow could be used for water-supply.

Site Nos	Area acres	Distance by road from R C miles	Approximate altitude of the building position	Value as existing	Value as developed
				Rs.	Rs.
17	2.35	0.80	1500	1200	
18	3.1	0.4	2600	600	800
19	2	0.43	2800	875	900
20	2.7	0.60	3500	600	800

I consider site No 17 the best of the group and 19, 18 and 20 next in order from valuation point of view.

Site No 17—As previously indicated this site has the advantage of being on a good metalled road. The big boulders at top at first sight seem to screen off the front but in the hands of a good developer this feature could be very nicely utilized to add to the amenity of the site. The boulders add a peculiar natural beauty to the land and with the building behind them amongst the shady trees and a garden on the flat piece of land in the forefront to the north west a nice effect would result. The building point referred to has a nice view of the station to the north west.

Site No 18—This is situated to the west of Jamharwar village but sufficiently removed (400') from it. A fairly good site but with steep rocky slopes especially to the south west on the road side. A fine big tree is perched on top. The eastern portion of the site could be developed at a small cost into a small building plot with access from the four mile chukkar road. His facilities for a well to the north to the south west. The burial grounds to the south are it is understood now closed up since two years nevertheless they act to a certain extent as a detracting feature.

Site No 19—This is close to R C Chapel and its highest portion consists in fact of a big rocky eminence. The other portion is fairly woody and the whole has easy access and water supply.

Site No 20—Under existing conditions this site has little building ground on top owing to the rocky outcrop running east and west along the whole length of site. A systematic cut and fill operation would render the site useful for a small bungalow. It is in a developed locality and has been provided with an access under the scheme.

TAD KALA CHAPRA—TORDA GROUP

This group consists of sites numbered 21 to 28 inclusive. With the exception of site Nos 23 and 24 which are at a distance of 600' east of the road and consequently requiring the provision of a special access,

it is situated on the Pilgrim Road between Kala Chappra and Torna villages. Access to these is given by branch road No 5. Site Nos 26, 27 and 28 are situated to the west of the Pilgrim Road and are separated from it by the 'Nadi' a very large stream which would involve construction of costly bridges if the sites were to be provided with pucca approaches. As this is impracticable as an economic proposition no pucca access to these sites has been attempted under the scheme. The sites are however within a reasonable distance of the station and are likely to find a market sooner or later.

Site No.	Area, acres	Distance by road from I O miles	Approximate altitude of the position for building	Value as existing	Value as developed
				Rs.	Rs.
21	4	0.82	2,840	675	250
22	3.76	1.16	2,800	479	150
23	6.65	1.28	2,670	500	125
24	3.30	1.26	2,800	550	800
25	6.00	1.21	2,780	550	975
26	6.00	1.32	2,660	450	
27	6.16	1.30	2,650	450	
28	6.40	1.40	2,650	450	

Site No 21 is in my opinion the best and Nos 25 24 23 23 and 26 to 28 come next in order of merit.

Site No 21—This is situated between the Kumbharwara and Torna villages and has a direct access over the Pilgrim Road which runs close to its northern boundary. The site falls rapidly on all sides except the west, but affords good ground for building at the top. It commands good prospects on all sides and has a couple of fine big trees on it.

Site No 22—This is cotermious with No 21 on its south west boundary and mostly consists of rough and rocky ground with the exception of one fairly good plot of land to the north west fit for a small bungalow. The site has certain amount of prospects especially to the north west but the burning ghats in the nulla to the south west is a decided disadvantage.

Sites Nos 23 and 24—These are close to Kala Chappra village and form part of the hill situated to its east. No 23 which is to the north east is the top of the hill and No 24 to the south east is a natural terrace on the hill side. While the former is mostly rough and rocky the latter consists of good ground for building. The one good point with regard to No 23 is however its high altitude and consequential good prospects under command. The well in the nulla to the south would serve

both the sites. The burial grounds, now closed which are situated below the high cliffs on the north west cannot be considered as a disqualification.

Site No 25—This is the next best site of this group. It is directly on the Pilgrim Road, has a well to its south west in the nulla close by and fairly good ground to build upon. A certain amount of filling up would be required to make good the dips and hollows but the result would be very effective.

Sites Nos 26, 27 and 28—The impracticability of providing a pucca access to these sites has been referred to already. They are situated on three adjacent ridges to the east of site No 25 and overlooking the 'Nadi' and are almost similar to each other in features, amenities and prospects. The rapid slopes would involve the usual hill side development. Considering these disabilities their value must be very low.

THE TAHRI GROUP

In this grouping are mentioned sites numbered 29 to 38 inclusive, situated between the Tahari and the existing Pilgrim Road to the south east. With the exception of site 36 which has a frontage on Abu Road, all the sites have been provided with pucca access roads under the Scheme. Sites 31, 37 and 38 will have frontages on the proposed Pilgrim Road, whereas branch roads Nos 6 and 2 will provide access to sites 29 and 30 and to 32, 33, 34 and 35 respectively. The group is not far from the developed locality and being mostly situated in the vicinity of Abu Road is likely to be disposed of comparatively early.

Site No	Area, ares.	Distance by road from P O, miles	Approximate altitude of the position for building	Value as existing per acre.	Value as developed, per acre
				Rs	Rs
29	55	1	3900	675	800
30	785	1	3900	650	1,000
31	7	1.25	3,730	200	300
32	110	1.5	3,700	225	1,100
33	6	1.4	3,800	540	700
34	41	1.4	3,830	520	750
35	37	1.4	3,770	800	1,000
36	225	1	3,760	300	700
37	83	1.25	3,750	700	900
38	333	1.25	3,800	825	1,050

Site Nos. 29 and 30.—These are situated to the north east of the Tahsil and have been provided with access over branch road No. 6. They are high and airy and 30 has a couple of fine big mango trees in it. The drawback to this latter site however is the existence of the incinerator and night soil depôt situated immediately to its south west. The position of these works is such that a great portion of this site, which consists of a beautiful high plateau with fine prospects is subjected to the foul smells carried by the winds, and the source of objection must be removed. I suggest an alternative site for them in another part of this report. As it is, the existence of these works has caused the value of this site as a building site to be very much depreciated. The value of site 29 is also to a certain extent prejudiced by these works, for although the site itself is further north east, one has to pass the objectionable works in approaching the site. As regards water-supply, the well adjacent to Tahsil could be utilized.

Site No. 31.—With a frontage on Pilgrim Road it is however a poor site due to the existence of two nullas throughout the length of the site from south to north. They are natural torrents during the rains and it is quite impossible to attempt any diversion. The contours are abrupt and building construction could only take place after extensive terracing is completed. This is one of the least eligible sites for the reasons above stated, and I imagine it will be the last to be built on. Its value cannot be more than Rs. 300 per acre.

Site No. 32.—This site forms the centre of the group of 9 sites to the north of Abu Road, and is the highest and best of the whole group. The water-supply is assured as there is a well containing potable water to the south adjoining branch road No. 2 which provides access to the site.

Site Nos. 33, 34 and 37.—These are rough and rocky and would entail heavy expenditure for levelling in order to make them suitable for building. Access to 33 and 34 is provided by branch road No. 2, and 37 will have a frontage on the new Pilgrim Road along its eastern boundary. The well referred to in site No. 32 may also be used to serve these sites. It is doubtful however if site 33 will be sought after with other lands available, owing to the difficulty of developing it. The branch road merely gives access to its southern portion whereas the highest and northern part of the plot would require extensive internal development to give access to it. The only good part is its commanding position and this is especially true of the northern portion of the site.

Site No. 35.—This is a charming little site with good building ground at top, a few fine shady trees and a well near by (referred to under site 32). The cultivable ground at the south west corner on the bank of the nulla is an amenity.

Site No. 36.—It is situated on Abu Road from which it has a direct access. It is ripe for immediate development and has facilities for a well in the nulla on the north west. This is one of the nearest sites to the developed part of Abu, but it has the disadvantage of being comparatively low lying, and its surface is rocky and uneven. Like all sites

fronting a main road it must be subjected to dust from passing traffic. Its position on Abu Road however must give it a certain added value in the eyes of the purchaser who likes to be in an established thoroughfare.

Site No 38—*Lake No 35* this is also a charming little site possessing fairly good building ground at top and the advantage of a well in the south west corner and a small piece of cultivable land. The site may be said to have some sort of access along the existing Pilgrim Road but it is more nominal than real due to the road being impassable for vehicular traffic.

Site No 39

Area	12.75 acres
Distance by road from Post Office in miles	1.54
Approximate altitude of the position for building	3,500 feet

This is another site of the same category as 26, 27 and 28 situated to the north east of the Dhundari village on a high plateau but with fairly good building ground at top. Had it not been for the difficulty of providing a pucca access the site would have been one of the first class ones. Value per acre Rs. 450.

THE ABU ROAD GROUP

The group which is situated to the east of the Abu Road and High School Road junction consists of 9 sites Nos. 40 to 48 inclusive all having frontage on Abu Road with the exception of site Nos. 41, 43 and 44, which latter have been provided with a pucca access along branch road No. 1. Site No. 47 has an additional frontage on Abu High School Road. The public well at the north end of the Kudra Nulla bridge could serve the whole of the group for its water supply.

Site No.	Area, acres	Distance by road from P. O. in miles	Approximate altitude of the point on for building.	Value as existing per acre.	Value as developed
			Feet.	Rs.	Rs.
40	10	1.5	3,670	1,000	
41	6.4	1.8	3,780	600	875
42	2.9	1.5	3,750	875	
43	6.16	1.82	3,800	500	750
44	4.5	1.07	3,770	625	875
45	4.4	1.6	3,770	800	960
46	2.75	1.0	3,740	875	
47	2.00	1.44	3,570	1,025	
48	1.40	1.00	3,770	700	

Site Nos 40, 41 and 42—As a building site, I consider site No 40 as the best of the group as in addition to its having a ready access and water supply it has the advantage of high altitude and consequently very nice prospects. The top portion could with little expense be rendered capable of accommodating 2 or 3 bungalows with appertinent buildings. A smaller summer house may be perched on the prominent rocky projection overlooking the Abu Road, thus adding to the charm of the site. Nos 41 and 42 which although coterminous with this site, are much inferior to it, especially the former, which is rather in the back ground and has bad contours. No 42 has fairly good contours but is comparatively very low.

Site Nos. 43, 44 and 45—This is the furthestmost group on the Abu Road and is situated on a ridge running west to east to the east of the Kudra Nulla Bridge. The group has a certain amount of access over the katcha track running along its northern boundary but in order to make it fit for vehicular traffic, the track is proposed to be reconstructed (Branch Road No 1 on plan).

Site No 45 which is situated on the western end of the bridge has good building ground at top and has a couple of fine trees. The public well referred to already is nearest to this site. *Site No 44* is lower than this in quality and *site No 43* still lower, as the latter has rapid slopes requiring costly terracing to prepare it for building on. It has one good point over others however, in the fact that its height commands better prospects than the other two.

Site No 46—This is opposite to No 45 and is girdled by the Kudra Nulla on its north and west and is just east of the Abu Road. It has a good flat piece of land in the forefront which however is only a few feet above road level and is consequently liable to dust and nuisance from passing traffic. The higher portion towards south is sloping ground, necessitating the usual hill side development.

Sites Nos 47 and 48—They are situate to the south of Abu Road between the Abu High School Road on west and the Kudra Nulla on the east. Both have frontages on Abu Road but site 47 has the advantage of height and of a fine big tree on it. The excise chowki at the north west corner of site 47 may be removed from there and be erected opposite the take off of the new Pilgrim Road where there is a suitable plot for it. Site No 48 is cut up by a small nulla which could be diverted along the common boundary of 47 and 48 to the west, but the cost would be prohibitive especially as the site is small.

THE GAOMUKH ROAD GROUP

The group which is situate between the Gaomukh Road and the Abu High School Road, consists of 8 sites Nos 49 to 56 inclusive. Of these sites, three, viz., 50, 51 and 53 have frontages on metalled roads, the first two on Abu Road, and the third on Abu High School Road, while

the remaining 5 sites have been provided, under the scheme, with a pucca access along Branch Road No 3, which with the exception of the first 500' length mostly follows the existing alignment of the Gaomukh Road. These five sites are rather out of the way, and have the further disadvantage of having no suitable spot for a well nearby as the sites are mostly on rocky hill tops.

Site No	Area, acres	Distance by road from P O in miles	Approximate altitude of the position for building	Value as existing, per acre.	Value as developed, per acre.
				Rs.	Rs.
49	3.2	1.2	3,840	500	750
50	3.6	1.27	3,380	800	..
51	3.4	1.50	3,520	750	
52	6.9	1.40	3,900	650	575
53	5.13	1.47	3,860	725	
54	5.5	1.27	3,100	625	725
55	8.2	1.45	3,580	500	500
56	2.75	1.16	3,870	500	725

I consider site No 50 as the best of the group, next in order being 51, 53, 52, 54, 49, 56 and 55. Site 52 is high and commanding and has better contours than 50, but it has the disadvantage of being so the back ground, and has difficulty of water supply. Sites 53 and 51 come next in value as building sites. Both have the advantage of a road frontage as well as proximity to water supply, but the latter has bad contours, whereas Nos 54, 56 and 55 are a little better in this respect. Site No 55 however is mostly rocky and its value as a building site must be very low.

ABU HIGH SCHOOL GROUP

In this group which is situate around the Abu High School is included sites Nos 57 to 69, in all 13 sites of which 5 viz., 57, 58, 59, 60 and 64 have frontages on Abu High School Road, and have wells in their vicinity. Consequently they are ripe for building development. The existence of the High School nearby has to a certain extent developed the locality already. Sites Nos 61, 62 and 63 have been specially provided with an access, under the scheme, by means of Branch Road No 4. The remaining 5 sites, viz., 65, 66, 67, 68 and 69 are out of the way and the practicability of the provision of a pucca access to them is

distinctly doubtful and this is dealt with under the heading of Traffic communications

Site No.	Area, acres	Distance by road from P. O. in miles.	Approximate altitude of the position for building	Value as existing per acre	Value as developed, per acre
				Rs	Rs
57	1.78	1.50	2,760	900	
58	2.9	1.56	3,890	700	750
59	4.1	1.65	3,770	950	
60	1.00	1.4	2,780	980	
61	4.2	1.52	3,880	500	700
62	3.2	1.68	2,780	625	725
63	4.3	1.80	3,510	550	800
64	5.50	1.76	3,535	1,000	
65	4.00	2.00	3,350	875	
66	2.40	2.1	3,340	875	
67	4.10	2.07	3,800	2.5	
68	2.45	2.2	3,080	450	
69	2.85	2.23	2,965	450	

Sites Nos 57, 58, 59, 60 and 64—At once ripe for development as they have a ready access and a convenient water supply. I consider site No 64 which is situated on the hill to the north of the Abu High School as the best of the group. It is high with good building ground and fine woody slopes. The site commands beautiful prospects on all sides.

Next in order of merit are 59, 60, 57 and 58. The first three are more or less flat sites practically at road level, they have good building ground and existing trees on them which is a great amenity. Nos 57 and 60 are each only capable of accommodating a single bungalow but site No 59 could with little expense be made to provide for two. Site No 58 has the advantage of height but the contours are not good.

Sites Nos 61, 62 and 63—These are situated to the north west of the Abu High School and 61 and 62 are coterminous with each other. Site No 63 is the best of the three, due to its having better contours than Nos 61 and 62, which have an undulating surface which requires to be levelled up to make it fit for building. All the three sites are fairly woody and the existence of nallas close by would render it not very difficult to find a suitable spot for digging a well for their water supply.

Sites Nos 65, 66 and 67—This group is situated to the west of Abu High School and the Kudra Nalla has to be crossed to get at them. The difficulty of providing an access to the group has been already alluded to. The sites themselves are of a poor nature as regards contours and other features and hence are not likely to be disposed of until no others are available. Their value must therefore be necessarily low.

Sites Nos 68 and 69—These are situate on the hill to the south of Abu High School and are over two miles from the centre of activity. They are high and airy and have fairly good contours; but their remoteness as well as the impracticability of providing a pucca access to them are detracting features so far as their value as building sites is concerned.

SITES ON LAKE HOUSE-DILWARA ROAD

Sites Nos 70 and 71—These are situated to the north of the above road and have frontages on it. Site No 70 is to the north of the Rajputana Club. It is bounded on the north by the boundary limit of the leased area between pillars Nos 52 and 53. Site No 71 is to the north of Swinley Lodge and is decidedly the better of the two by reason of its having better contours and a piece of flat land at the top which appears to have been put to agricultural use although it does not seem to be very well suited for it. The farm house on it is only a derelict structure. Both the sites are practically in a developed locality, and have ready facilities for water supply. The existing paths leading to Adhardev and the Craggs through site No 70 need diversion which could be easily done.

Site No 72—This site is situated to the east of the junction of the Lake House and the Anadra Roads and consists of a huge mass of rock. It is a high site and commands a beautiful view of the Nakhi Lake but the difficult and rocky ground of which it mainly consists would require a tremendous expense to develop it as a building site consequently its value under existing conditions must naturally be low.

Site No.	Area, acres.	Distance by road from P. O. in miles	Approximate altitude of the position for building.	Value as existing.	Value as developed.
				Rs.	Rs.
70	4.15	0.63	9,900	975	
71	4.00	0.63	9,580	1,000	1,100
72	8.6	0.32	3,050	625	/

SITES ON THE NAKHI LAKE

Sites Nos 73, 74, 77 and 78—Of these sites Nos 73 and 74 are situated to the north of the lake site No 77 to the west and site No 78 to the south. The sites are mostly rocky especially Nos 73, 74 and 77.

I have an undulating surface and it would cost a great deal to develop them as building sites. Being situated on the edge of this beautiful lake however, they would make grand building sites if properly developed.

Site No	Area, acre.	Distance by road from P. O. in miles.	Approximate altitude of the position for building	Value as existing, per acre	Value as developed per acre
				Rs	Rs
73	4.00	0.73	3,850	800	...
74	7.4	2.37	3,850	800	...
77	6.3	1.60	3,90	800	...
78	3.8	0.95	3,970	850	...

SITES ON ROBERT'S SPUR

Site Nos. 75 and 76—These sites are situated on the western boundary of the leased area between the Anadra Road and boundary pillar No 49 which is actually built on the place locally known as Robert's Spur. The Dhobighat Nulla which flows down from the Nakli Lake separates these sites from the Anadra Road, but a crossing is not very difficult. Site No 75 is the better of the two, as it is a level plot with plenty of shady trees, whereas No 76 although higher than 75 is very undulating and is almost barren. The locality however, is very lonely and there is more than a danger of pollution from the Dhobi Nulla if a well is constructed in the Nulla referred to. These are serious disadvantages, and it is very likely this pair of sites will not be in much demand by the ordinary person in the market.

Site No	Area, acre.	Distance by road from P. O. in miles	Approximate altitude of the position for building	Value as existing, per acre	Value as developed, per acre
				Rs	Rs
75	3.1	1.29	3,710	800	...
76	8.2	1.29	3,760	600	...

SITES ON SUNSET POINT ROAD

Site Nos 79, 80, 81 and 82—These sites have frontages on the Sunset Point Road which is a fairly good road for vehicular traffic except for a portion on the west (proposals for the improvement of which are being made under the chapter "Traffic communications"). Site Nos 79 and 80 which are situated to the south and west of the Residency lawns are nice little building sites already in a developed locality and possessing

all the amenities necessary for building development. Although not very high both have a raised plot of ground suitable for a small bungalow and have a portion of low ground each which could be laid out as a garden.

With regard to Nos 81 and 82 whereas the former is a sloping rock of great height for the greater portion the latter is quite a plain site a few feet above road level and capable of immediate development. The former is barren and the latter profusely woody. It is possible a well could be dug at the south east corner of site 81 close to the Nulla running nearby. The loneliness of the locality is however a disadvantage to the sites.

Site No.	Area, acres	Distance by road from P O in miles	Approximate altitude of site position for building	Value as existing per acre	Value as developed per acre
				Rs.	Rs.
79	2.1	0.60	3,820	1,200	1,275
80	1.8	0.96	3,830	1,200	1,200
81	0.00	1.4	2,970	000	700
82	2.47	1.37	3,777	800	000

IMPROVEMENT OF BAZAAR AREA

The Executive Engineer supplied me with the original plan on 33 feet to an inch of survey made in 1919—I understand by means of a theodolite and plane table,—in order that my recommendations should be on definite lines, I thought it necessary to have this plan checked and for this purpose the Executive Engineer very kindly placed a surveyor at my disposal. The results have shown that this precautionary measure was necessary inasmuch as one of the important road alignments in this plan was very much out. For example, the portion of the Post Office road from its junction in front of Blast well with the Bharatpur road right up to the junction at the South West of the Church. A check measurement taken from the South West corner of the Municipal cattle shed in line with its front face to the centre of the Post Office road showed the actual distance 74.58' whereas the plan showed 80'—a deviation of 22 feet.

I have had the plan corrected as far as the time at my disposal would allow and am attaching herewith a plan which has been brought up to date. On this plan I have shown my various proposals in distinct colours and in this way I have made it as far as possible self explanatory. The Municipality recognizes that improvements to the Bazaar area are necessary and there is therefore no need for me to discuss the subject from this point of view.

In discussing the bazaar area I generally refer to the properties bounded on the North by the road in front of Sirohi Vakalat and the Telegraph Office, on the East by the church and Post Office road, on the South by the Trevor Oval and on the West by the Blarapur road along the Agent to the Governor General in Rajputana's kitchen garden and the Anglo Vernacular School. The total area is approximately 15 acres, and contains 300 buildings used almost entirely for residential purposes, 110 houses and shops combined, and 2 cattle sheds and stables with a total population as in 1921 of 1,675 made up of:—

Trading class	600
Butchers	60
Others	250
Artisans	60
Coolies	800

From returns in Magistrate's office, I understand there are 70 cattle privately owned, of which 30 are tethered in the Bazaar, and 12 municipal. One of my proposals contains suggestions for the erection of purea cattle stable in which it is desirable that all the bullocks and buffaloes kept in the area should be properly housed. It is necessary to point out that the stabling of bullocks, etc., within the immediate precincts of residences such as we find in this area is most undesirable and very insanitary.

The area generally slopes from the North-East with a more abrupt fall from the East from the Post Office road which is so named locally for want of some official designation. Land also slopes from the Telegraph Office road, from the West and North; the total result of these contours is that the centre of the line running approximately North-East to South-West forms a natural nulla which collects the surface drainage from a considerably large area on the North-East. Practically no attempt has been made in the past to deal with this surface drainage or to train the afore-said nulla with the result that it more or less wanders hap-hazard over the South-East portion of the area. I make brief recommendations for dealing with this portion.

It should be at once understood that any proposals which I have made are governed by the fact that so far as can be ascertained no large capital sum is available for expensive acquisitions and the result is that I have attempted not an ideal development scheme but an improvement of the whole area which should be within the realm of possibility of execution. This being so I do not attempt any drastic changes in the main bazaar road which are flanked on either side generally, by properties of old standing in the form of shops and residences any interference with which would naturally mean heavy expenditure. I have confined my proposals to the treatment of the bazaar proper, to improvement of gradients where possible and provision of surface drainage facilities.

GENERAL DEVELOPMENT

I now come to the consideration of the general development of the bazaar area and very little is required to be said in this connection as the whole of my scheme has been shown on the accompanying plan No 847

The whole scheme resolves itself into the acquisition and demolition of insanitary properties where the cost of acquisition would not be prohibitive and the construction of subsidiary roads which would allow of suitable building sites to be provided. An important feature is the realignment of the road running to the South West of the area and North-East of Trevor Oval. The plan will indicate that I have completely changed this alignment in order to make the road itself a boundary to the Oval proper. This would bring into use a good deal of the existing waste land involves the removal of the male latrines and will provide excellent building sites overlooking the Oval. There is an existing group of trees almost opposite the Dill Kishia bungalow which I should like to see preserved but I feel it is impracticable as their preservation would entail a very objectionable alignment, and I have therefore reluctantly had to provide for their removal. These sites will I think be in considerable demand and should realize good prices. I have not attempted to arbitrarily lay down the actual areas of the individual sites and my divisions into plots are only intended to serve as an indication as to what I think might be suitable areas. Naturally the plan and estimates of any buildings which would be allowed to be constructed will receive careful scrutiny, and attention could be paid to the area of the plot which will be allowed to be covered by building. Generally speaking in a development of this character I should not allow detached buildings facing the Oval to occupy more than a 1/3rd area of the plot. Were I dealing with the plots without the advantage of this large open space in front of them I should insist upon 3/4th area being left open. I should recommend that sufficient open space be left between houses to allow of the free percolation of breezes into the interior. With regard to the roads in the interior there would be no objection to having buildings erected in blocks of four or five with party walls. This is a desirable form of construction and allow of buildings being erected at a minimum of cost and the land being developed as economically as possible. There is a certain demand for more shops and this can easily be met, with the land at disposal.

EXISTING BUILDINGS

A brief allusion has already been made to the shops forming the bazaar proper. In addition to these properties other residences are spread haphazard in more or less close proximity to the bazaar proper with the exception of a line of buildings more or less coterminous, which runs from the South West of the main bazaar in the direction of the Trevor Oval. This spur contains 15 pucca structures and the remainder 50 can be generally described as being little more than huts. I am

recommending that a certain number of these huts should be acquired and demolished, and the area resulting thrown into the adjoining open land

2

ROAD CONSTRUCTION

In Bazaar Proper

Under the heading of drainage, I have indicated my proposals in respect of the formation of this road in so far as the question of drainage is concerned. For sections and cross sections of proposals please see plan No. 849.

It is apparent that the present surfacing by means of loosely dressed slabs of stone is entirely unsatisfactory. The best possible surface having regard to the gradient and use would be asphalt or one of the several bituminous compounds.

On the score of expense asphalt construction must be ruled out but I think an asphaltic concrete surface having as its aggregate the very excellent local stone should be within the range of practical politics. There is very little if any, heavy traffic and the following mixture will give excellent results.

By weight	70 per cent.	1" stone
	10	stone slings
	13	sand
	7	Bitumen

I need hardly add that the mineral and the bitumen should be separately heated to about 300° to 350° Fahr before mixing. If laid at a temperature of about 250° Fahr evenly spread to the required formation and rolled with a thin layer of stone chippings across the road and finally with a heavy roller in the direction of the alignment a road surface will be reproduced which will last with the present form of traffic for 50 years or more.

If it is decided that a bituminous material is too expensive then ordinary concrete with a cement floating should be considered.

Ordinary waterbound macadam would be unsatisfactory for obvious reasons of gradient and rainfall. For the road will be largely a road in name only and more really a foot passage.

REGRADEING AND SURFACING

The regrading of all roads is a somewhat difficult problem, due to the plinths of the existing buildings. The main bazaar is particularly difficult for improvement in this respect, but it is not necessary to deal with that in detail as I understand, the Executive Engineer at Abo has already worked out proposals under this head, in which he suggests the repaving of the main bazaar with stoneflags. My previous remarks will make it clear that I do not think, this is the best possible treatment.

BRANCH ROADS

The branch road K L M connecting the bazaar with the Telegraph Office road can be considerably improved by cutting away the protruding rock to the south west of the Sirohi Vakalat house and improving the junction at L so as to give a uniform gradient. The road is particularly bad at M, and its width should be improved by acquiring a portion of the open ground forming part of the compound of the property to the South West. This is more particularly shown on plan No 824. The branch road N P connecting the end of the bazaar road with the Telegraph Office road near Adam's Hospital can be improved by filling in a little along the portion of its length about the centre, but I fear, this is as much as can be done to reduce this somewhat abrupt slope at either end. The existing roadway to the North West of the houses Nos 82 to 88 and to the North East of houses Nos 79 to 81 requires to be filled in by a depth of 12 inches in order to prevent the flooding which is a common experience to the adjoining properties during the rains.

NEW ROADS

The plan No 824 shows in detail the proposed new roads to be constructed. The total length of these new roads is 8,000 ft. They may be divided into two classes (1) 40 ft road to the North East of the Oval, and (2) 20 feet roads improving the existing properties and opening up new lands suitable for building purposes. In addition to these roads there are two access lanes each of 14 ft in width which are provided for, one to the extreme South West of the estate giving access to a group of latrines and another to the North East giving access to another group of latrines. They are marked on the plan by letters P G and H J respectively. The estimate of cost of construction of these new roads is included in Appendix No 7 which gives a total estimate of cost of the whole of the works included in this part of the scheme, from which it will be seen that the total estimate of cost in respect of these new roads is approximately Rs 9,000. The 40 ft road A B marked on the plan requires to be constructed throughout the length of 380 ft and then in continuation to the North West along the existing alignment widened to the North-East of the said alignment. There is like most of the lands in Abo an excellent foundation to the roads already existing and it should have only 6" metal surface.

The description of the 20 ft roads is quite unnecessary as the plan itself is self-explanatory. All these roads have comparatively easy gradients and should be water bound and macadam constructed.

For the surfaces of the proposed new traffic bazaar roads, which have easy gradients and for the ordinary access roads water bound macadam would be the cheapest, but if funds are available by all means tar macadam.

SANITATION

The sanitation of the area under consideration is bad beyond description. I have personally seen children answering calls of nature in

the open land not far from dwelling houses and no amount of regulation would stop this. It will require an army of sanitary officers dotted all over the place if this practice is to be prevented. Even for adults the existing sanitary arrangement with latrines often at a great distance from their residences entail a considerable amount of trouble and inconvenience. I consider this question of the provision of latrines to be the most difficult of all the problems which have to be considered. For it must be remembered that unless reasonable facilities are offered, human nature being what it is, the people will not be prevailed upon to take long walks to answer calls of nature especially in hours of darkness when they are not under observation. The position of the existing latrines set apart for the use of males is highly inconvenient, and furthermore is most objectionable from the point of view of the general public. Their construction is elementary in the extreme and they are objectionable from almost every stand point. I really think that the best solution would be to have latrines dotted about at more or less frequent intervals rather than to have great blocks separated by considerable distances from the residences of the people who are expected to use them.

I have advanced somewhat in this direction by allocating in the plan five different sites, four of which are to actually serve as sites for latrines for the residential area and one in the nature of a public latrine just opposite the Post Office road, between the road and the bhisti-well. The latrines are shown on plan No. 847 in yellow wash.

The portable type of latrine at present in use should be abandoned for simple water flushing groups of say half a dozen seats in each group. A non-porous connecting trough under the seats could be flushed at intervals by a bhisti responsible for a series of groups. The trough would naturally be so graded as to allow of the rapid carrying away of the excreta into a collecting tank. This tank could either be of a portable variety or in the shape of a cesspool with a trap, a water seal and hermetically closed. It could be pumped out as occasion required into a sealed cart and taken away for disposal during specified hours. There is no reason at all why the contents should not be trenched on suitable grounds with the ultimate benefit to agriculture in the form of manure. The form of latrine I have described has been used with considerable advantage in other small towns. In this way, I am convinced, and in this way alone, will the only solution to the existing problem be found. It may be said that a great deal of expense will have to be incurred but I venture to suggest that the ultimate gain will far outway any initial cost. There would be no danger from flies and no smell. I am quite aware in making these proposals that water is not abundant but a large quantity will not be required for flushing purposes if the arrangements are scientifically carried out. At a rough estimate, it may be stated that probably a provision of a gallon per diem for 10 persons would be sufficient. This would mean a total consumption of 150 gallons per day or say 200 gallons for 1,500 people. The total resulting sewage might be taken at under 250 gallons per

day which would represent the quantity which would have to be disposed of either daily, weekly or monthly according to the capacity of the various chambers

I am attaching some drawings (Plan No 848), which give a rough idea of the proposals in the form of sketch plans. It must not be thought that these recommendations contain the final and ultimate decision but they can easily be improved upon, according to the amount available to be spent

For example the flushing arrangements will merely consist of a tank which would be kept filled by the bhusti. This tank would supply either a gallon or a gallon and a half cistern of the usual type the water from which can be released by the man in charge of the particular group of latrines when occasion demands. In all I have planned for 30 seats, and I think these would probably suffice

WATER SUPPLY

The question of water supply to the bazaar area will to a large extent have to remain quiescent until the general water supply scheme for the whole of Abu is dealt with

DRAINAGE

The question of surface drainage as far as the whole area is concerned is not one that creates much difficulty. The area is naturally self drained and it only remains to deal with the collection of surface water and its disposal by its natural outlet at the North East end of the Trevor Oval by means of subsidiary surface drains which I have arranged for in aligning my proposed roads

The plan No 824 will make it clear that so far as the main drain is concerned, which at present takes the form of an open and natural nulla running North East and South West through the open land to the North East of the Oval my recommendations include the construction of a new surface drain which starts from the rear of Pramp's Bakery continuing in a very nearly straight line due South West for 450 ft and then turns sharp to the South East for a distance of 150 ft and again at this point turns South West ultimately going very nearly due South discharging in the bhusti nulla at a point almost adjoining the land at present used as Municipal grass stores. The advantages of this alignment will be apparent from the plan. I at one time thought of more or less utilizing the alignment of the existing nulla, but I am satisfied that this will be a mistake and the proposed new alignment enables me to provide a convenient open space between the proposed new road C D E and the Post Office road. It will be apparent from the plan that it would be very objectionable to have the backs of the houses on road C D E immediately underneath the Post Office road. The result will now be that an open space will be provided for in front of the houses which could be planted with trees and could with advantage be used as a public garden. I have not actually proposed in my scheme the utilization of the south eastern and north eastern front-

age of the road *C D E* for building plots although this means the surrender of a certain amount of value from adjoining lands. Having regard to the altitude of the Post Office road, I think it is a desirable feature. A subsidiary water drain is carried from a point adjoining house No 207 almost due south making use of the existing culvert at the northern corner of the Oval.

These two main surface water drains will carry less than is normally carried by the present nullā. One of course, to the construction of the new roads which will have the usual side drains which in turn will be connected up with the previously mentioned main drain. As an appendix to the Report I am attaching details (Plan No 849) of the proposals relating to the construction of these drains in the form of sections and cross sections.

The local drainage of the bazaar itself should I think, be dealt with by a central drain. This has some disadvantages from the point of view of road user, but nothing like the disadvantages side drains would have. The latter would not be practicable due to the erratical boundaries of the bazaar entailing many acute bends and turns. For this reason alone the side drains are out of question, apart from the fact that two will be necessary one on each side of the road instead of the one central drain now proposed. This point is one of considerable importance as the road itself is already so very narrow.

From the plan referred to above showing sections and cross sections of drains it will be seen that generally the central drain will be covered and access would be given at suitable intervals by means of comparatively large manholes. There is no question of fall arising, as the bazaar has a natural fall from east to west. At present the surface drainage merely finds its own way over the stone pavements of the bazaar and kutcha roads, and thus ultimately gets into the nullā. The roads branching off the bazaar can efficiently be drained by the usual side drains.

The plan will also indicate that the beforementioned central drain is proposed to be of 12 inches vertical depth of 'V' shape formation. It is possible that during the periods of the heaviest rainfall even this may not suffice but the formation of the level of the road itself will naturally carry the surplus through its centre. The drain may either be, for preference, of stoneware throughout, if so, it should naturally be rounded at the base, or as a more economic construction by a half circular pipe at the base with cement sides, or failing these two methods, wholly of neat cement.

ACQUISITIONS OF PROPERTIES INCIDENTAL TO THE DEVELOPMENT SCHEME

The proposals as foreshadowed in the previous remarks together with an inspection of the plans accompanying will reveal the fact that a certain number of properties will have to be acquired numbering in all 100. 35 of these properties are held on pucca patta tenure, 47 on kutcha patta and 18 on Lok s tenre. I have prepared a statement (Appendix 4) which gives the details of the properties with an estimate

of their capital values and I have shown on plan No 8a0 as to how these tenures are distributed. The total compensation to be paid in respect of the properties held on *pucca patta* tenure is Rs 15,000, *katcha patta* Rs 18,000 and *Loks* (for structures only assuming that new sites are given to dispossessed owners) Rs 3,000.

LAND AVAILABLE FOR DEVELOPMENT AND DISPOSAL

The net result of the beforementioned acquisitions would be that a considerable area of land will be available for development and disposal. Of this an area of $1\frac{1}{2}$ acres is required for roads and 2.8 acres or 1,00,000 s ft will be available for sale to the public after provision has been made for the following public requirements —

- (a) Playground (b) Latrines (c) Cattle sheds for public and Municipality (d) Gardens, (e) Rehousing of Municipal sweepers, and (f) Municipal vegetable market.

It should be remarked that, when making provisions for the *Loks* with new sites, (admeasuring 10,000 s ft) in every case the area which they have lost has been increased by 50 per cent when giving them new lands. This has been rendered necessary, due to the fact that their existing areas are so small that it would not be wise to allow rebuilding on such diminutive plots. In my calculations I have not made any provision for charging the *Loks* with additional sums for the extra land they have been given as it is a matter for the Municipality to decide hereafter. I estimate that the surplus land available for sale viz 1,00,000 s ft is to day worth somewhere in the neighbourhood of Rs 85,000 as against the net cost of works and acquisitions of properties Rs 92,700. These figures are set out in a greater detail in the finance statement Appendix No 6. I think I should add that in arriving at my return from the sale of lands I have had practically no data on which to base my valuation, but I have assumed and all over rate of Rs 9 a yard. I have reason to believe that this must be considered to be a reasonable figure having regard to the fact that the sites fronting the Oval are very choice and would probably fetch a very much higher figure.

LAND TENURES IN THE BAPAAR

I have shown on plan No 850 how these tenures are distributed.

(1) *Pucca patta* — I gather that all persons holding under this tenure are the owners of the fee simple possession of the properties concerned.

(2) *Katcha patta* — Persons holding under this tenure I understand hold under perpetual lease paying a rent (gro and rent) of Rs 5 per *Sirohi Bigha* (55 yds by 55 yds) and in the case of houses Rs 2 per house yearly. I have no definite information as to the terms of the lease apart from paying the ground rent and I am therefore not in a position to state whether or no they would be entitled on this position, upon acquisition to receive more than the actual value of the superstructure. Far it may be that the lease provides that the *Sirohi Darbar* or their successors

in title have the right to acquire these properties without compensation in respect of the land. If this is not so, then naturally they would be entitled to the difference between the capitalized ground rent and the value of the land in so far as the land is concerned and the correct way under these circumstances to value their interest would be to capitalize the net annual value of land and buildings and to deduct from this the capitalized value of the ground rent. It should be borne in mind in this connection that the annual value of land and buildings might especially when the buildings do not adequately develop the site merely, represent the annual value of the land alone. The ground rent might suitably be capitalized having a reference to the current rate of money at 6 per cent. or 16½ Y. P.

(3) *Lok's tenure*.—This is a tenure which is not easily describable by any concise legal definition but which has eventuated as a result of a gift to the Loks of certain lands to which they have an inalienable right of occupation free of any ground or other rent. I understand the position is that in years gone by, the Loks were agriculturists cultivating lands in the vicinity, some of which now form the site of the Trevar Oval. In course of time the agricultural parts of their holdings were required for various purposes and they were left with the lands actually held by them for residential purposes. I am given to understand that they have what may be said to be a "Squatter's" title and so far as Government of India are concerned, Government have no right of objection except by any powers which they possess for compulsory acquisition and compensation. If the ordinary Land and Revenue and Civil laws governing lands outside the Native States apply then the Loks from the acquisition of their properties would be entitled to practically the full simple value of the land and buildings. It has been suggested to me in certain quarters that they would only be entitled to the value of the superstructure, but if this is so then Government possess certain rights of which I have no knowledge. I have discussed this matter somewhat fully because my proposals provide for the acquisition of some of these properties.

It must be borne in mind however, on the assumption that full compensation will have to be paid, that my scheme provides for sites being given to Loks who are dispossessed of their existing holdings and it is conceivable and indeed highly probable that such persons would prefer to have a new site given them in the present area, and compensation for the existing structure, rather than full compensation for land and buildings and my proposals are based on this assumption.

WORKS TO BE EXECUTED UNDER THE SCHEME OTHER THAN ROADS, DRAINS AND LATRINES, PREVIOUSLY MENTIONED.

HOUSING OF MUNICIPAL SWEEPERS.

This is a matter which should receive early attention, as at present housing conditions are, to put it mildly, not such as to be recommended.

I have selected a site which is numbered on the plan 29 and 30. This has an area of 3,750 s ft, and provision could be made on it for ten tenements. We cannot have an elaborate design, but I should think, with reasonable care, that such tenements could be erected at the rate of Rs. 600 per tenement.

MUNICIPAL CATTLE SHED

The present position does not fall in with the scheme arrangement and I have selected a new site as shown on the plan "Plot No. 81". It has an area of 4,446 s ft and there will be sufficient room to provide for 20 cattle instead of the existing accommodation for only 14. There is very little value on the existing shed and it is an eye sore to all users of the Post Office Road.

GARDENS AND TREE PLANTING

An estimate has been made for an expenditure of Rs. 500 on the planting of trees along the road side and in the open space fronting surface water drainage channel. Nothing more is really done in the way of preparation of a public garden, that is a matter which arises subject to the funds being available.

VEGETABLE MARKET

At present the vegetable and fruit sellers expose their goods for sale in odd places on the pavement of the main Bazaar which is a highly unsatisfactory arrangement. Plot No. 20 on plan admeasuring 6,200 s ft would be found to be a convenient site for a small vegetable market.

MEAT MARKET

Proposals have been for a long time on foot to erect a more proper Meat Market in a more suitable locality. It appears from the office files that the present Market is privately owned and that the ownership rests in a number of butchers who originally combined together. It is not necessary in this Report to discuss the individual ownerships. I imagine that the original intention of the Municipality to construct a new Meat Market was largely based on the fact that the existing Market is situated in an insanitary environment rather than that the Market itself was insanitary or it may be that since the inception of the idea of the Market QUA Market has been improved, for a very careful inspection does not permit of a ready condemnation of the Market on the ground that it is itself insanitary. On two or three visits at different hours of the day I have been particularly struck with the marked cleanliness of all the stores and the fact that most of the meat which is exposed for sale was kept in fly proof cases. I am of opinion especially as land is not likely to be readily available for the construction of an

entirely new Meat Market elsewhere the best course to pursue would be to reoder as far as possible the neighbourhood of the Market more sanitary and in this way to free it from the likelihood of contamination by flies. It must not be thought that I am, for one moment, suggesting that the existing position of the Market is desirable for it is most certainly not but the facts have to be faced as they exist and I think that by drastic treatment of the area in the proximity a great deal could be done to remove the prevailing objection. I need hardly say that it is desirable that the semi basement of the present Market should not be allowed to be used for residential purposes. It is at present occupied by butcher families and some tenants including a few shoe makers who have their stalls immediately coterminous with the exterior walls of the Market. On a question of policy it is worth while to consider the effect that the erection of a new Meat Market would have on the existing owners of the present Market. It would be of no use building a new Meat Market if no butchers would be found who would occupy it. This will practically mean that the use of the existing Market would have to be prohibited. In equity the present owners should be fully compensated for the loss of their Market if such regulation could be enforced. I imagine it could only be enforced on sanitary grounds and I think it would be extremely difficult to convince an impartial arbitrator that the present market is in an unsanitary condition. However this may be, there is no doubt that if any expense has to be incurred on unproving the environments of the market and consequently the market that the owners of the present building might readily be expected to contribute towards the cost of such improvements. They might either do this by removing the tenants from the semi basement of the market and improving it in such a way that no objection on sanitary grounds would be taken to and by paying a certain lump sum to the Municipality towards the cost of acquiring adjoining properties or in such a way as might be mutually agreed upon. The owners of the Market must be fully aware of the Municipal proposals and would naturally be prepared to pay a reasonable contribution towards any improvement scheme which would allow them to retain the benefits of the present Market.

BRIEF NOTES ON ABU WATER SUPPLY

KUMA NALA SCHEME

Finance

Some criticism is necessary with regard to the calculation of annual instalments as appearing in appendix V, on page 23 of Vol II, printed in 1921. A slight error has crept into this calculation and the annual equated cost of repayment of capital together with the interest on the outstanding amount from year to year would be Rs 8,004 and not Rs 7,810 assuming the rate of interest taken is 4 per cent. The calculation is a simple one and a reference to page 82 Table 5 of the

book of Valuation Tables (copy of which was supplied to the Hon'ble the Agent to the Governor General in Rajputana under cover of my report regarding the valuation of Alwar mte, No Abu 1, dated 11th June 1921) on the assumption that the loan is to be repaid within a period of 20 years gives a year a purchase of 18 50. If total loan quoted in the above mentioned appendix is divided by this year's purchase, the annual payment is at once revealed.

This particular appendix was prepared some years ago, and the interest of 4 per cent is now of course quite out of date and should be increased to 6 per cent. However, I notice that in appendix 3 revised on page 35 of Vol II, the interest on capital has been actually reduced to $3\frac{1}{2}$ per cent notwithstanding the fact that it accompanied a report dated 17th June 1920. It is hardly necessary to say that a loan could certainly not be raised as at that date at anything less than 6 per cent.

I notice in this latter appendix that no provision has been made for repayment of capital. This is a serious omission and would make a difference on a $3\frac{1}{2}$ per cent basis of Rs 7,700 approximately, the annual charge being very nearly Rs 15 300 against the Rs 7,700 stated. The result would be that the total which is Rs 10,952 becomes Rs 18,600, and the result indicates the cost to the consumer at Rs 12 $7\frac{1}{2}$ per 1,000 gallons, against practically 11 annas calculated in the appendix, assuming we can borrow at $3\frac{1}{2}$ per cent. But if we take 6 per cent as the market price of money in 1920, the total annual charge for interest and repayment of capital spread over 20 years is Rs 19,000 in round figures or an increase of Rs 11,400. Adding this Rs 11,400 to the Rs 10,950 the total cost is Rs 22,350 or well over 100 per cent more than the estimate. It is thus apparent that the current estimated cost to the consumer is roughly Rs 1-8-0.

Coming now to the final revised estimate appendix 3 (revised) for a 50 feet dam, printed at page 40, a similar series of miscalculations appear. Firstly as regards the omission of any provision for repayment of capital and secondly as regards the gross underestimate as to the rate at which capital could be borrowed. Adopting 6 per cent for interest and repayment, the annual cost to the consumer would be Rs 22,240 as against Rs 8,929, an increase of Rs 18,311. If this is added to the total cost of Rs 12,272 the latter figure is increased by over 100 per cent and the total cost to the consumer will thus be nearly Rs 1-1-0 for 1,000 gallons.

It should be observed that the estimated capital cost of Rs 2 55,104 omits the cost of establishment, tools and plant of Rs 4,848, this latter sum should of course have been included. It has been included, I notice, under general abstract of expenses, Statement II on page 40.

A further omission is the capital and annual costs incidental to provision and maintenance of the mains required to serve areas at the

moment undeveloped. It will only be by the development of these areas that the maximum consumption will be attained and deferred costs etc., should have been included.

In my opinion the estimated consumption of 21 million gallons per annum is a reasonable estimate for future requirements but I do not anticipate on the evidence before me that this maximum will be reached for another 10 years and in estimating the cost to the consumer, I think it would be wise to assume 20 million gallons for certainly a mean period of 5 years. This would mean an increased cost per 1,000 gallons during the next 10 years. The only way to diminish this cost would be to construct the dam in the first instance to a height of 40 feet making full provision in the construction for the simple raising of another 10 feet when occasion required it. I fully appreciate the reasons given by the Superintending Engineer in his note dated 17th June 1920 for the immediate construction of the dam to a height of 50 feet, but I see no reason why the service main of 5 inches should not at once be provided. It is true that it is estimated the extra 10 feet of dam will only cost another Rs. 38,000. But I think there can be no doubt that in another 10 years time, when the prices of money and material are higher, the net annual cost will show a saving over the present cost of immediate construction.

While discussing this question of finance, I think I need point out that no provision has been made for depreciation, on the other hand I am of opinion on a matter of policy, as apart from finance, that it is desirable in the provision of the renewals fund, the charge should be graded. The question as to how we shall provide for payments for things needed now which will hereafter be needed in a greater measure, can only find an answer to some degree in a differentiation of the amortization charges in the way I have indicated.

GRAPES.

I am afraid I do not agree entirely with Mr. Keeling's note dated 7th March 1919. A run-off of 20 or 25 per cent would be reasonable in the sandy plains around Ahmednagar but in a rock catchment area such as we have in contemplation I have not the slightest doubt that 50 to 70 per cent would be a reasonable figure to work on, with a preference to the former figure.

Leakage in all artificial reservoirs of the type in view must always be a doubtful factor, and time after time I have seen money wasted on the erection of expensive dams as the result of not making sufficient borings all over the site in order to test the porosity of the subsoil. Superficial observation is not sufficient, but I must say that in the case of the site under reference one's experience leads to the belief from the formation of the rock that the leakage would be very slight.

Again I am not in agreement with Mr. Jeeling when he questions the solidarity of the abutments. No more solid abutments could be wished for than are to be found on this site and I am of opinion that an arched dam would be eminently suitable and certainly more economical in the existing circumstances.

METHOD OF RECOVERING ANNUAL OUTLAY

The calculations have been very properly and necessarily based on the cost to the consumer of so much per 1 000 gallons but the method of actually collecting this sum appears to have been based on assessment on annual rental value. Inasmuch as the calculations have been made on a certain consumption per head, it is questionable as to whether the principle of assessing on rental value is one which should be adopted or not. From the principle however, it does not necessarily follow that the population would be distributed on the basis of annual value. This latter basis of assessment had its origin in the belief that ability to pay should form the criterion of assessment. It is not necessary in a report of this description to enter into a discussion as to the merits or demerits of the principles involved and I am more concerned to suggest a method whereby the annual return expected could be secured. The obvious method of ensuring that the consumer adequately paid for the benefits would be to instal water meters in every house and provide for a minimum monthly payment but this would be practically impossible in the bazaar area where I imagine there will be a certain source of supply in the form of stand pipes for many years to come.

It might be possible however to combine the two methods, viz. to instal meters in those properties where it was felt that the user was in excess of the average supply calculated and to assess in the case of other properties on the basis of annual value—even in these latter cases it might be necessary to fix a minimum charge.

I apprehend that legislation would be necessary to enforce an assessment on all inhabited properties. It is quite conceivable that in not a few cases owners of properties would be content with the existing wells and would not be prepared to go to the additional expense of having a water supply laid on. No provision has been made in the estimates for such cases and it has been assumed that every resident on the hill will avail himself of the water-supply.

In conclusion I am strongly of opinion that the Kudra Nala Scheme has been soundly conceived and is able to solve the problem of water-supply to Mount Abu. From my previous remarks it would be gathered that in my opinion the cost to the consumer for the first 10 years of the scheme would be something more than Rs. 1-8-0 per 1 000 gallons. But there is nothing to be alarmed at in this by comparison with water-supply systems in other places when it is remembered that the population is small and largely crowded into a few months in each year.

SUMMARY.

At the present moment the demand for building sites is the reverse of encouraging, but I think to some extent the Municipality is responsible for this state of affairs. They have a magnificent hill station with a great deal to commend it, but they have not sufficiently advertised their wares. Every important Railway station north of Bombay and south of Delhi should have an attractive poster on it setting forth the advantages of Mount Abu as a holiday and health resort, and advantage should be taken of the hundred and one different methods of advertising.

If the Electric Lighting Scheme, which is proposed at an estimated cost of two and a half lakhs of rupees, and improved water-supply are provided the hill should become extremely popular.

If I may be permitted to remark on general finances, it is to the effect that in my opinion the Government of India should merely consider the capital received in the form of premium on the leases of building site as a capitalized ground rent, and should certainly relinquish any claim they have to the premium received upon the execution of the leases. If the Government of India desire to encourage the sanitary development of Abu, they should for some years to come cease to consider it as a source of revenue and should be content merely to recover the amount that they have actually spent in payment to the Sirohi Durbar. It will only be by a sympathetic consideration of a suggestion such as this, that the Municipality will have funds available to meet the interest and sinking fund charges on capital necessary to carry out any of the improvements foreshadowed in this report.

A. E. MIRAMS,

Consulting Surveyor to the Government of Bombay.

Poona,

1st March 1923

APPENDICES.

APPENDIX No. 1.

VALUATION OF BUILDING SITES.

Site No.	Rate per acre as existing.	Rate per acre as developed.	REMARKS.
	No.	Rs.	
1	800	...	No access road provided under the Scheme.
2	850	1,100	
3	850	1,050	
4	850	1,000	
5	800	900	
6	850	750	
7	850	100	
8	750	850	
9	600	700	
10	540	775	
11	600	750	
12	500	750	
13	700	850	
14	800	1,000	
15	800	750	
16	300	..	No access road provided under the Scheme. Frontage on existing Road.
17	1,500	...	
18	650	700	
19	850	800	
20	600	850	
21	675	850	
22	675	750	
23	700	750	
24	550	800	
25	650	875	
26	450	...	
27	675	900	
28	650	1,000	
29	800	700	
30	825	1,100	
31	850	700	
32	850	750	
33	800	1,000	
34	850	...	Frontage on Abu Road.
35	700	900	
36	825	1,050	
37	450	...	
38	1,000	...	
39	600	875	
40	675	...	
41	600	750	
42	625	875	
43	800	950	
44	850	950	
45	850	950	

APPENDIX No 1--VALUATION OF BUILDING SITES--*contd*

Site No	Rate per acre as existing	Rate per acre as developed	REMARKS
	Rs.	Rs.	
46	875		Frontage on Abu Road.
47	1 025		Ditto.
48	700		Ditto.
49	500	750	
50	800	800	Frontage on Abu Road.
51	750	750	Ditto.
52	600	725	
53	725	725	Frontage on Abu High School Road
54	825	725	
55	600	700	
56	500	725	
57	0 0		Frontage on Abu High School Road.
58	700	700	
59	0 0		Frontage on Abu High School Road.
60	100		Ditto.
61	800	700	
62	525	725	
63	650	800	
64	1 000		Frontage on Abu High School Road
65			
66	775	"	No access road provided under the Scheme.
67			
68			No access road provided under the Scheme
69	450		
70	875		Frontage on existing Road
71	1 000	1,100	
72	625		Frontage on Anand Road.
73	500		Ditto.
74	600		Ditto.
75	800		Ditto.
76	600		Ditto.
77	800		Frontage on existing Road
78	800		No access road provided under the Scheme
79	1,250	1,275	
80	1 200	1,250	
81	600	700	
82	800	900	

Proofs,
1st March 1923 }

A E MIRAMS,
Consulting Surveyor to the
Government of Bombay

APPENDIX No. 2.

List of Building Sites available for disposal with a brief description of boundaries, etc, locality, distance from Post Office and value.

APPENDIX No 2

LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL.

* *Altitude of Rajpalana Club 3,920*

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS
1	8	4 Mile Chakkar Road	Miles 1.36	3,980	Situated to the north-west corner of Alwar S to Bounded on north, east and part and part west by the northern boundary of Alwar a/c.	Rs. 500	Site accessible only on existing 4 Mile Chakkar Road. No proper road access provided under the Scheme.
2	2	Bikaner House	1.42	3,880	Situated to the east of Bikaner House. Bounded on north and east by boundary of leased area (Pillar No 3 on the east corner) on south by the Road from Bikaner House No. 2.	1,000	
3	3	Bikaner House	1.42	3,350	South of site No. 2. North by Bikaner House Road up to the junction of footpath going due south-east, east from the junction referred to last south up to pillar No 11 of Cantonment limit and west by the footpath running due north-west. South by the Cantonment limit.	1,000	

4	2-9	Bikaner House	1 12	3,830	10°5	South east of site No. 2 North by foot path from Bikaner House running due north east upto Pillar No. J East and part south by extension, Pilgrim Road. South by Baka mila. West by site No. 3 (east boundary)
5	7 12	Gera Chappra	1	3,850	900	On Pilgrim Road and to the north-east of Gera Chappra. North by foot of cliffs, but by burial grounds. South by foot-path from Pilgrim Road to burial grounds. West by a curved line 90' from Pilgrim road at north increasing to 100' in the middle (due east of the highest point) and finally meeting the foot of the cliffs at the north west corner
6	1-55	4 Mile Chokkar Road	1 58	3,900	750	North from a point 150' south of pillar No. 12 (level area) and 20' east of 4 Mile Chokkar to the east boundary of Alwar site (this second break in line towards north from the south east corner) West by Alwar site. Foot by 1 mile Chokkar (20' from existing road edge) South along the centre of the dip running east-west situated about 50' south of the first break in Alwar boundary from the south east corner
7	3-10	Ditto	1 13	3,820	900	North by the dip referred to in No. 6. Foot by Alwar boundary West by 1 mile Chokkar road (20' from existing road edge) South along the foot path running due south-east down to the southern boundary of Alwar site.

REPORT ON DEVELOPMENT OF MOUNT ABU.

APPENDIX No 2—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*contd*

No of sites.	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building.	Brief description of boundaries	Rate per acre	REMARKS
8	36	4 Mile Chakkar Road	Miles. 1.26	3,840	North by the foot-path referred to in No 7. West partly by Alwar side and partly by wella. South east corner of Alwar about midway on the west boundary East by 4 mile Chakkar road (20' from road edge). South by the small wella.	Rs. 650	
9	36	Ditto	1.25	3,830	Northern by the wella referred to in No. 8 South and east by 4 mile Chakkar (20' from road edge) West by wella running due south west from Alwar side South by the foot of the hill along the boundary of agricultural lands.	750	
10	576	Ditto	1.25	3,860	North partly along the 4 mile Chakkar (20' west from existing road edge) up to a point on leased boundary 340' north of pillar No 13 East along leased boundary 240' north and 200' south respectively of pillar No. 13 South by a line 20' west and parallel to foot-path to Salgaon West by wella.	775	

11	52	Ditto	153	3,860	North and west by foot path to Salgaon. Northeast along leased boundary from the crossing of foot-path, to 300' southeast South by nulls, running due southwest to about 700' southeast of leased boundary, then by a curve in a northwest direction up to foot path to Salgaon.	770
12	6	Ditto	155	3,880	North by nulls. East by foot of the high ridge. West partly by nulls and partly by foot path from 4 mile Chakkar running due southwest (about 20' east of it). South by foot-path.	750
13	325	Ditto	1	3,830	To the north of Mr. Cawasjee's bungalow between the baral ground to the north and 4 mile Chakkar to the south. (20' from road edge) southwest corner of site on 4 mile Chakkar 300' east of the east corner of the triangle of roads (pilgrim and 4 mile Chakkar), to the southeast of Gera Chappan.	850
14	4	Ditto	1	3,820	North by a line 20' south of the 4 Mile Chakkar and parallel to it from in front of the southeast corner of the triangle of roads to 360' east, then by a curve along the foot-path to the West of Mr. Cawasjee's bungalow 300' southwest of its southeast corner then from this point in a line due northwest for a distance of 360' and finally due north to the southeast corner of the triangle of roads referred to.	1,000
15	3	Ditto	1	3,815	North by the 350' line referred to in No. 14, east by foot-path referred to. South by a line 430' southwest and parallel to the northern boundary. West along the boundary of the agricultural land.	950

APPENDIX No 2—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—contd

No of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS.
16	8.2	4 Mile Chakkar Road	Miles. 1.5	3,470	Site on the hill to the east of Mr Cawasjee's bungalow. On east by the agricultural lands in the bed of 'Nadi', on north by east of rocky spur. On east by a curved line from this rock and by a line 10' west and parallel to the nulla. On east running due south north, on south by cliffs and nulla.	Rs 300	An isolated site far removed from existing Road and separated by the Nadi Road across not provided under the Scheme.
17	2.25	Dak Bungalow	0.36	3,360	In front of Dak Bungalow. North by nulla. East by the top of cliffs. South partly by cliffs and partly by a line 20' from and parallel to the northeast side of the adjoining house and then by a right-angle bend to the west up to the nulla. Distance from northwest side of the building 40' On west by nulla.	1,200	
18	3.6	Kumbharwara	0.64	3,900	North by the foot of cliffs. East partly by a line running due northwest and south east from the east end of the cliffs to the nulla on southeast. Then by the nulla as far as the culvert on the 4 Mile Chakkar, southwest of Kumbharwara, then by the foot of the hill (30' from west side of 4 Mile Chakkar) South partly along 4 Mile Chakkar (20' from road edge) and partly by nulla. West by nulla.	800	

19	2	R. C. Chapel	0.43	3,860	North by bottom of cliffs to the south of R. C. Chapel. East by the track to Golf Links. South by Jodhpur Court a fencing West by a curved line from the west end of the fence to the cliff at north.	900
20	27	Golf Links	0.60	3,850	North by Golf Links and foot-path. East by the premises of the private house to the northeast and along the centre of the valley running south. South by nulla. West by Golf Links, (foot of hill)	850
21	4	Kumharwara	0.81	3,840	Site to the east of Kumharwara. North by Pilgrim Road (20 from south side). East by the Torna side of the high rocky mound in a southwest direction up to the nulla (continuing the foot-path) at south. South partly by the nulla up to 150' to the North-west and then continuing up to the foot-path coming up-hill from Kumharwara. On west by a line from this end due north up to the sharp bend on the Jillo Chahkar diversion to the northeast of Kumharwara.	800
22	375	Torna	1.16	3,850	North by the southern boundary of 21 (referred to). East by a line starting from a point 300' northwest on the foot-path from Pilgrim Road and continuing horizontally round the hill up to the rocks on the north-west corner above Kumharwara.	750
23	555	Kala Chappra	1.28	3,870	Site northeast of Kala Chappra. North and west by top of cliffs. East by the agricultural land at foot of hill and south by nulla running due southwest and northeast.	725

APPENDIX No 2 — LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—contd

No of site	Area in acres	Locality	Distance by road from P.W.D. Office	Approximate altitude of the position for building	Brief Description of boundaries	Rate per acre	REMARKS
24	3.25	Kala Chappra	Notes. 125	3,800	Cotermious with No. 23 North by nullah. East by the agricultural land. South by a line 20' from and parallel to footpath coming from Vilkanath Mahadev Temple. West by nullah flowing south from Kala Chappra.	Rs. 800	
25	6	Pilgrim Road	131	3,780	North, west and south by the agricultural land. East by Pilgrim road (40' west of centre of proposed alignment). Northeast corner 60' from the southeast corner of Vilkanath Mahadev Temple, and southeast corner 40' west and 80' north of the culvert (1st from Abu Road).	875	
26	6	Ditto	132	3,840	North by nullah. East by nullah. South by nullah. West by agricultural land at foot of Hill.	400	Site separated from Pilgrim Road by Nadi. No access provided under the scheme.
27	6.15	Ditto	130	3,850	Cotermious with No. 26 North and west by Nadi. South by nullah running due East-west. East by a line parallel to the west boundary at a distance of 450'.	420	Same remark applies to this also.

With the Incinerator and
night soil Depot
removed

28	500	Ditto	1.30	3 860	Caturnious with No 27 North by nullia and west by Nadi. South by a curved line one the southwest corner 30' northeast of agricultural land and then by a line parallel to the north boundary at a distance of 400' East by a north-south line 240 east of the highest point.	450
29	505	Tahsil	1	3 900	Site to the northeast of Tahsil. North and east by top of cliffs. South along the centre of the dip between this hill and the hill to the south. West by a circular curve (200 radius) having the nullia flowing down southwest in the middle of site as diameter	900
30	7 83	Ditto	1	3,900	Site coterminous with the southern boundary of No 29. East by nullia flowing due southwest. South horizontally along the contour of hill 350' south of the highest point on site, as far as the nullia on the east. East by a curved line 450 from the highest point up to the southeast corner of site No. 29.	1,000
31	7	Pilgrum Road	1.36	3,730	Site to the north of Dhandai village (west) north by nullia. East by cliffs adjacent to Pilgrum Road. West by nullia and south by a line very nearly parallel to north boundary at a distance of 600 starting from the south end of the cliffs referred to and following in a circular curve to the upper end of the nullia on west.	800
32	11 5	Abu Road Mile No 1/1	1 5	3 920	Site to the north of Abu Road Mile No. 1/1 North by a line due southwest 300 north of the highest point (centre of site). East by the two nullias flowing northeast and south respectively. South by cliffs 500 ft. south of the highest point. West by cliffs overhanging the nullia.	1,100

Ditto

APPENDIX No 2 — LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*could*

No of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of this position for building	Brief description of boundaries	Rate per acre	REMARKS
23	6	Abu Road Mile No. 1/1	Miler 1-4	3,880	West by mile No. 12 and by nulla right down to a point 30 north of the well to the south, then in a southeast direction for 200' for the southern boundary. On east from this point to the north along bed of nulla to the distance of 850. On north from this end in a northwest direction to the nulla on west running due south-north.	Rs. 700	
24	4.1	Abu Road Mile No. 0/7	1-4	3,860	North by cliffs (bottoms) South by cliffs (top). East partly by nulla (southern portion) then going in a circular curve 260' from the highest point and ending in the cliffs at North.	750	
25	3.7	Ditto	1-4	3,770	North by nulla. West by nulla and curve referred to in No. 34. South by a curved line from the well due southeast past the foot of the cliffs to the nulla on west.	1,000	
26	2.25	Abu Road Mile No. 0/3	1	3,760	North by Abu Road (30' from south edge) West by nulla. South by foot of cliffs (cliffs).	950	
27	3.2	Abu Road Mile No. 1/2	1-25	3,780	East by Goomukh Road (30' from road edge) On South by a line 130' long having its east end 100' and west 170' from Abu Road towards North. Southeast corner in front of Mile No. 1/2 plus 100' East by a line	850	

38	3-38	Ditto	1-25	3,800	1,050	from southeast corner due north leaving the sharp bend on the existing Pilgrim Road 10' to the west, in a distance of 500', then turning westwards (north boundary) by a curve through the high rocky mound to the nalla on the west. West by nalla.
39	13-75	Pilgrim road	1-54	3,850	450	Site to the northwest of the take off of the existing Pilgrim Road. North by Pilgrim Road. East by foot of cliffs to the west of the first bend on the Pilgrim Road and by the shed belonging to the temple. South by a line from the well at southwest to the shed on the southeast. West from the well to Pilgrim Road due north (slightly northeast).
40	10	Abu Road Mile No. 1/4	1-6	3,870	1,000	Site to the north east of Dhundai village end to the east of Nadi. East partly by left bank of Nadi and partly by cliffs to northwest. North by nalla continuing in a southeast direction to a point 250' due east of the highest point. East by a line 500' long due south from this end. On south by the edge of the three cliffs overlooking the Nadi. East by top of cliffs adjoining the existing Pilgrim Road junction. Southwest corner 50'. North of mile No. 1/3 plus 200' of Abu Road. Southeast corner at 100' north of mile No. 1/4 plus 200'. East from this later corner to the crossing of the two small nullas at north. Then in a north-west direction in continuation of the west side nalla up to 500' from junction; then by a curve horizontally (north boundary) to 500' due west and finally by a curve to the cliffs at southwest corner.

No access provided to the site under the scheme, as it involves the construction of a costly bridge over the Nadi.

APPENDIX No 2—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*Contd*

No of sites	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS
41	0.4	Abu Road, Mile No 1 1/4	Miles, 1.0	3,830	West by site No. 40 (east boundary) North by a line from the north end of this boundary in a very nearly circular curve along the contour of ground (for the east and south sides) up to the junction of nullas to the west referred to in No 40	Rs 875	
42	2.0	Ditto	1.5	3,760	North by No 41 East by nulla. South partly by nulla and partly by the track breaking off the Abu Road. West from the junction of this track towards north west up to the southeast corner of site No. 40	875	
43	6.15	Ditto	1.82	3,800	North by the old track (10 from edge) Northwest corner on the first nulla crossing on this track and northeast corner 400' eastward on the track edge. West by the nulla referred to East from the north east corner referred to a long the contour to the cliffs to the southeast corner then following the contour horizontally (for southeast boundary) to the nulla on the west	750	

44	4.5	Ditto	1.07	3,770	North by the track (10 from edge) East by nullia referred to in 43 South by top of cliffs and along the contour horizontally for the remaining portion West by the dip on the ridge	876
45	4.4	Ditto	1.6	3,770	Corner into an junction of track with Abu Road. North by existing track (10 from edge) West and south by Kudra nullia. East by the centre of the dip referred to in 44.	960
46	2.75	Abu Road Mile No. 1/5	1.6	3,740	North by Kudra nullia. East by Abu Road (30 from edge) up to the nullia and then by nullia 200 due south of road; South by a line from this point in a south-west direction to a distance of 200' then by a circular curve to the Kudra nullia on the west.	875
47	2.5	Abu Road Mile No. 1/4	1.44	3,770	North by Abu Road (30' from road edge) East by the rocks to the south of nullia crossing situated to the west of furlong No. 4 in mile No. 1. South by a line parallel to Abu Road, and at a distance of 260' from road edge. West by Abu High School Road (30 from road edge)	1,025
48	1.4	Ditto	1.6	3,760	North by Abu Road (30' from road edge) West by No. 47 Northeast corner 180 from mile No. 1/4. East from this corner by a curve to rocks towards southwest up to the southeast corner of 47	700
49	3.2	Gaomukh Road	1.2	3,840	Site on the Hill to the southwest of Idgah north and east by Gaomukh Road (90' from edge) West by a nullia south by nullia following due east and crossing Gaomukh Road in the sharp bend to the south of burial ground.	780

APPENDIX No. 2.—List of Building Sites Available for Disposal—*contd*

No of sites.	Area in acres.	Locality	Distance by road from Port Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre.	REMARKS.
50	8.6	Abu Road Mile No 11.	Miles 1.27	3,880	North partly by agricultural land by the south side of Abu Road and partly by the road itself (40 from road edge). Northwest corner 160' from the edge of Abu Road to the south along the right bank of wells coming through burial ground. West by cliffs overlooking the burial ground to a point 160' south of the well-carrying on Abu Road. On east by a line due south from the northeast corner to the east-west well on the south.	Rs. 800	
51	3.4	Ditto	1.30	3,820	2 to conform with eastern boundary of site No 50. On north and east by a line 30 feet wide parallel to Abu Road, as far as the Road 100 due south of Abu Road School. On south by wells.	750	
52	6.9	Gaomukh Road	1.40	3,900	Side conforming with the southern boundary of site No. 50. On north by site No. 50. West by cliffs, 120 due west of the highest point. East from the southeast corner of site No 50 due south up to the cliffs a distance of 200. South by cliffs.	750	

53	5.13	Abu High School Road	1.47	3,980	Site to the east of Gaumnakh Road and to the west of 65' North and west by Gaumnakh Road, (30' from road edge), east by nulla and south by nulla	725
54	3.5	Gaumnakh Road	1.37	3,900	Site to the east of Gaumnakh Road and to the southeast of 64' North by a line 150' long due east-west situate at 100' from the highest point East by nulla. South by tops of cliffs West by tops of cliffs overhanging the nulla in that direction running due south.	700
55	3.3	Ditto	1.43	3,880	Site to the east of Gaumnakh Road and to the southeast of 64' North by a line 150' long due east-west situate at 100' from the highest point East by nulla. South by tops of cliffs West by tops of cliffs overhanging the nulla in that direction running due south.	725
56	2.75	Ditto	1.46	3,970	Site to the east of Gaumnakh Road and to the west of 65' North and west by Gaumnakh Road, (30' from road edge), east by nulla and south by nulla	725
57	1.78	Abu High School Road	1.50	3,760	Site to the east of Abu High School Road Northwest corner at 400' south of junction and southwest at 560' North and east by boundary of agricultural land West by Abu High School Road (30' from edge) and south partly along the agricultural boundary to the southwest corner of site referred to	900

APPENDIX No 2 --LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL--*contd*

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS
68	2.9	Abu High School Road.	Miles 1.66	3,830	Site to the west of Abu High School Road Northeast corner 750' south of junction and 50' west of road edge. North by a line 150' from this corner due west. East by Abu High School Road (30' from edge) up to the footpath at south and then parallel to the footpath at a distance of 20' for 200' length, then for south by a line from this point due northwest for 200' West by nulls. North by nulls and agricultural land. East by Kudra nulls. South by Abu High School Road (30' from east edge) West by agricultural land.	Rs. 760	
69	4.1	Ditto	1.65	3,770	Site on the junction of the first footpath breaking off the Abu High School Road and going southwest of the hills. North by a semi-circular curve 160' diam. the northern most point being 120' south of junction East by Abu High School Road (30' from west edge) West by nulls.	900	
70	1	Ditto	1.6	3,750	Site on the junction of the first footpath breaking off the Abu High School Road and going southwest of the hills. North by a semi-circular curve 160' diam. the northern most point being 120' south of junction East by Abu High School Road (30' from west edge) West by nulls.	930	
71	4.2	Ditto	1.83	3,880	Site traversed by the footpath referred to in 60 Northeast corner 850' southwest of the junction of the footpath with Abu High School Road and 50' south of the path at this point. North partly by nulls and	700	

62	3-03	Ditto	1-68	3,780	partly by cliffs. South by nulls and west by nulls. East by a line line south from the northeast corner referred to up to the nulls to the south.	725	
					Situated on the hill due north of the Kudra nulls with 61 on its eastern boundary. North by nulls. East by nulls (small up to where it meets the Kudra nulls towards south then in a southwest direction up to the end of nulls at south. Southeast corner 180° west of the centre of the Kudra nulls.		
63	4-3	Ditto	1-80	3,810	Situated on the hill to the southwest of Kudra nulls bridge on Abu High School Road north by nulls. East by Kudra nulls south by Kudra nulls and west partly by Kudra nulls and partly by footpath, running up-hill due northwards.	800	
64	5-30	Ditto	1-76	3,835	Situated on the hill due north of Abu High School and due east of the Kudra nulls crossing. North and west by Kudra nulls. East by nulls up to 400 due southeast, then by a circular curve ending in front of the Abu High School approach road. South by Abu High School Road (30' from edge).	1 000	
65	4	Ditto	2	3,860	Situated to the southwest of the junction of the Kudra nulls and nulls running along the west boundary of Abu High School grounds. On east by small nulls. North east corner on the crossing of the nulls on the east side footpath going on the hill, then continuing northwest up to Kudra nulls for the north boundary. West by Kudra nulls 100' south of the northwest corner. On south by a line parallel to the north boundary at a distance of 100' the southwest corner falling on the west side footpath.	375	No direct access provided under the scheme as it involves the construction of a costly bridge over the Kudra nulls.

APPENDIX No 2—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—contd

No. of site	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS
66	8.4	Abu High School Road.	Miles. 2.1	3,800	Site adjoins with No. 65 on its southwest bounded on west by—Kudra mulla, 400' southwest of the west corner of No. 65. Then due south 300' as far as the cliffs to the south. On east by site No. 65. On south from the southeast corner of No. 65 in a southwest direction as far as the cliffs referred to.	Rs. 375	Same remark as for No. 65
67	4.1	Ditto	2	3,800	Site adjoins with eastern boundary of No. 66. On north by a line due west between the mulla and 200' south of junction of Kudra mulla and the mulla east of Abu High School grounds. On south by mulla.	375	Ditto.
68	3.45	Abu High School	2.2	3,330	Site on the hill south of High School bounded on north east and west by a half circle 200' radius the northernmost point being 100' south of the northernmost point being Abu High School, the east end of curve slightly curved to the south up to the mulla running west-east and across an old cart road on east. On south by a line 200' due west from this corner. Southwest side of site from the end of half circular curve—horizontally around the small pointed ridge up to the mulla, running west by the north side of the High School Creek ground.	450	A far away site. No proper access provided under the scheme.

450

Site commences with No. 68. On north by site No. 68 West by horizontal line along the contour of hill from the south west corner of No. 63, to a distance of 300'. Then in a southeast direction in a straight line 300' long. On east from the end of this line due north to the southeast corner of site No. 68.

375

Site on the Lake House Drive Road, and to the north of the P. W. D. Establishment to the north by leased area limit 130' quarters. North by leased area limit 130' due north of Pillar No. 62 and up to within 50' of Pillar No. 63 due east, east and south by Lake House Road (20' from edge) as far as the Petan Mansion (building) West from this point due north up to Crags road, then due northeast up to the 130' point on the leased boundary referred to

1200

Site to the northwest of Swanley Lodge South by Lake House Road (20' from edge) Southwest corner 680' due northeast of the junction of this road with Anand Road East by a nulla. West by nulla. North by a line very nearly parallel to the south east boundary at a distance of 300' feet.

626

Site on Anand Road to the northeast of Lake House North by nulla adjoining Lake House Road East by footpath to pumping well. West by Lake House Road (80' from road edge) up to nulla crossing at north. South by Anand Road (50' from edge)

3,905

2-23

Ditto

3,900

0-63

Crags Road

3,880

0-83

Lake House Road

3,000

0-63

Nakhi Lake

68

70

71

72

APPENDIX No 2.—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*contd*

No of sites	Area in acres	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS
72	1	Nakhi Lake	Miles, 0.78	3,300	Side to the northwest of Boat Club on Nakhi Lake North by foot of high cliffs. East by nulla draining into the Lake under a bridge South by Anandm Road and west by a line running up hill along northwest from a point 300' west of the nulla crossing referred to	Rs. 500	
73	7 1/2	Ditto	0.67	3,350	Coterminous with 73 on its west boundary North by foot of cliffs. South and part west by Anandm road and part west by footpath, going due northeast up-hill, after the first reverse bend from lake dam.	800	
74	31	Anandm Road Roberts Spur	1.29	3,710	Side between Roberts Spur and Anandm Ghat North and east by nulla from Dhoba Ghat West by leased boundary between Miller No. 43 and 44, 110 due northeast of former and 130 due southwest of latter South by footpath to Roberts' Spur (11' from edge)	300	
75	3.3	Ditto	1.29	3,700	Site south of footpath to Roberts' Spur North partly by footpath to 300 west of nulla then due southwest along nulla running down into plains. East by Dhoba Ghat nulla and south by foot of high ridge.	600	

77	50	Nakhi Lake	1	3,030	Site to the west of Nakhi Lake, North by the high cliffs above Dhohi Ghat. East by a line 60' from and parallel to the lake road. South by the nulls draining into the lake East by leased boundary 180' southwest and 200' northwest of pillar No. 40.	800
78	33	Ditto	0-95	3,070	Site on Boley's Walk and to the southwest of Nakhi Lake. Bounded on east partly by the rocky base of Tood Rock and partly by the small nulls running due southwest. On south by the nulls flowing eastward to the north of Boley's Walk and partly by a line 20' from and parallel to Boley's Walk, up to a point 250' west of the junction of footpath coming up from lake. West by nulls and by cliffs and north partly by cliffs and partly by a line due southeast up to the footpath on east referred to.	850
79	21	Residency Lawas	0-80	3,320	Site to the southeast of the lawn, and on the Sunset Point Road (south side); north by nulls adjoining the municipal gardens. East and south by Sunset Point Road; West by nulls.	1,275
80	18	Sunset Point Road	0-06	3,335	Site in the fork of the two Sunset Point Roads West boundary (curved) 200' east of the centre of junction. East by the Talav and nulls, North and south by Sunset Point Road (10' from edge).	1,250
81	6	Ditto	1-4	3,070	Site near the Sunset Point and on the junction of Boley's Walk. North, east and south by nulls. West by Boley's Walk 20' from its east edge at the junction followed up in a regular line towards north.	700

APPENDIX No 2—LIST OF BUILDING SITES AVAILABLE FOR DISPOSAL—*contd*

No of sites.	Area in acres.	Locality	Distance by road from Post Office	Approximate altitude of the position for building	Brief description of boundaries	Rate per acre	REMARKS.
82	3 45	Sunset Point Road	Miles 1 37	3 000	Site to the south of Sunset Point Road and to southwest of No 81. North by Sunset Point Road (20 from edge) East and west by nullah. Width east to wet in the middle 450 South by a haor along the hill side at a distance of 400 from centre of Sunset Point Road. Northeast corner 150' east of the Bailey's Walk junction.	Rs. 900	

NOTE—In addition to these rates ground rent at the rate of Rs. 20 per acre per annum is assumed to be charged in each case.

POONA

1st March 1923

A E MIRAMIS,

Consulting Surveyor to the Government of Bombay

APPENDIX No. 8.

DEVELOPMENT OF BUILDING SITES.

Financial Statement.

Credits.		Debits.	
	Rs.		Rs.
Increment on plots resulting from development under the scheme	26,400	Cost of construction of roads	1,39,700
Capitalized ground rent 20 rupees per annum in respect of 224 acres in perpetuity at 5 per cent.	88,600	Pilgrim Road, four mile	98,000
		Chokkar Road	15,000
		Branch Rd. No 1	1,000
		" " " 2	3,000
		" " " 3	10,000
		" " " 4	5,000
		" " " 5	1,200
		" " " 6	2,500
		" " " 7	1,000
		" " " 8	2,000
		" " " 9	2,000
		Sundry improvements to two of the existing roads	1,000
Total	1,26,000	Total	1,39,700

No account has been taken in the above statement on the credit side for either increment or capitalized ground rent in respect of those plots which already have road access and are consequently not affected by the development proposals in this report. Equally no account has been taken in respect of those sites to which no access has been provided or exists.

The total value of lands already having adequate access is Rs. 71,000 to which must be added the capitalized ground rent *viz.*, Rs. 34,000, making a total of Rs. 1,05,000.

Summary.

	Rs.
Total value of all Building sites	2,80,000
Capitalized value of ground rent	1,50,000
Total	<u>4,30,000</u>

POONA :

1st March 1923. }

A. E. MIRAMS,

Consulting Surveyor to the Government of Bombay.

REPORT ON DEVELOPMENT OF MOUNT ABU.

APPENDIX No 4.

IMPROVEMENT OF BAZAAR AREA.

Valuation of properties to be acquired

Note—P—Pucca potta

K.—Katcha potta.

L.—Lok's tenure

House No.	Tenure	Capital value.	REMARKS.
		Rs.	
144 to 147	P	2,082	
143	K	438	
142	P	266	
141	K	425	
140	K	471	
139	P	346	
137	K	364	
136	K	363	
135	K	311	
134	K	343	
133	P	412	
132	K	285	
131	P	400	
130	K	540	
76	P	800	
77, 78	P	805	
160	K	743	
169	K	322	
164	L	260	Value of structures only (dilapidated)
165			
166			

APPENDIX No 4—IMPROVEMENT OF BAZAAR AREA—*contd*

House No.	Tenure	Capital value	REMARKS
167	K	Rs 181	
168	P+K	172	{
169	P	285	
		280	
170	}	K	850
171			
172			
173	}	L	900
179			
174			
180	}	L	400
206			
217			
219	}	L	200
221			
223 to			
227 and	}	K	1,426
233			
232			
231	}	P	370
232			
234			
235 to	}	P	1,225
237			
238			
238	}	P	627
239			
151			
152	}	K	370
153			
153			
153	P	435	

APPENDIX No 4 —IMPROVEMENT OF BAZAAR AREA—*contd*

House No.	Tenure	Capital value	REMARKS
185	K	Rs 352	
187	L	433	Value of structures only
188			
191	L	800	Value of structures only
193			
194			
195			
196	K	604	
189			
100	K	275	
337	<i>Khalasi Lines</i>		
338	K	1,050	
335			
334	K	458	
333	P	460	
332	K	100	
334	K	300	
347	K	750	
348			
349			
350	P	1,035	
351	P	730	
353	K	654	
352	P	1,465	
353			
354			
355	K	620	
360	P	373	

APPENDIX No 4 — IMPROVEMENT OF BAZAAR AREA—*concl'd.*

House No	Tenure	Capital value.	REMARKS.
366	P	Rs. 170	
367	P	238	
368	K	715	
369	P	368	
363	P	363	
362	K	405	
364	K	450	
366	K	820	
367	K	805	
370	K	495	
368	K	100	
369	K	555	
371	K	275	
381	P	200	Portion wall
382			

Notes—These values are based on information as regards us and tenures, etc., supplied by the Municipal and Talukdar's office.

POONA,
1st March 1923

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A. E. ALIKADIS,
Consulting Surveyor to the Government
of Bombay

APPENDIX No 5

IMPROVEMENT OF BAZAAR AREA

Areas of Final Plots

Plot No	Area	REMARKS.
	S ft	
1	5467	Frontage on Trevor Oval.
2	7700	Ditto
3	7895	Ditto.
4	6438	
5	7782	
6	3376	
7	2400	Garden
8	3496	Frontage on Trevor Oval
9	3104	Ditto.
10	6534	Frontage on Bharatpur Road
11	9075	Ditto
12	27224	Playground.
13	4203	
14	2362	
15	2452	Latrines (10 seats)
15A	4161	Cattle shed (for public cattle).
16	2102	
17	3180	
18	3237	
19	3200	
20	6207	Site for vegetable market
21	2777	
22	2396	
23	540	Latrines (6 seats)
24	7710	
25	7024	
26	3182	
27	4500	
28	3040	
29	2550	Site for rehousing municipal sweepers.
30	1200	
31	4446	Cattle shed (for Municipal cattle)
32	3330	Latrines (10 seats)
33	800	Latrines (5 seats)
34	400	Ditto.
	106090	= 3 acres 23 gunthas.

POONA,

1st March 1928

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A E MIRAMS,

Consulting Surveyor to the Government
of Bombay

APPENDIX No. 6.

IMPROVEMENT OF BAZAAR AREA.

Financial Statement.

Estimated return		Estimated cost of improvements	
	Rs.		Rs.
Sale of surplus plots of building land at Rs. 1 per sq ft. for 1,00,000 sq ft. deferred for a mean period of 3 years at 6 per cent (assuming that it would take 5 or 6 years before the plots are disposed of) . . .	83,960	Compensation for properties to be acquired	84,000
Say	84,000	Cost of roads	23,180
		Diversion of nullies and construction of pucca drains . . .	4,000
		Municipal latrines	7,700
		Rehousing the Municipal sweepers	8,030
		Dismantling and reconstructing the Municipal cattle shed	10,100
		Garden and tree planting	500
		Establishment charges on works at 10 per cent	5,153
Total	84,000	Total	92,683

Net cost to the Municipality, Rs. 8,683, Say Rs. 8,000.

POONA,

1st March 1923.

A. E. MIRAMS,

Consulting Surveyor to the Government
of Bombay.

APPENDIX No. 7.

IMPROVEMENT OF BAZAAR AREA.

Estimates of Works.

New Roads--

	Rs.	
20' Roads, 2470' at Rs. 2-8 per foot	6,175	
14' Roads, 140' at Rs. 2 per foot	280	
40' New diversion 280' at Rs. 5	1,750	
Widening Bharatpur road, from 22' to 30' 575 feet at Rs. 1	575	
Total	<u>8,780</u>	8,780

Improving main Bazaar roads.

Cost of improving and re-surfacing the main bazaar roads	14,400	14,400
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Details--

	Rs.
Removing existing flagging, 830' x 13' at Rs. 10 per 100 sq. ft.	1,094
Re-surfacing with bituminous concrete 3" thick on 6" lime concrete, 680' at Rs. 14 per foot	11,620
Improvements to Branch Roads and junctions	1,260
Total	<u>14,400</u>

Diversion of nullas and construction of pucca stone drains.

	Rs.	
Main drain in Khulasi line, 1000' at Rs. 2-8	8,500	
Banegaon drain 250' at Rs. 1-8	375	
General levelling up	125	
Total	<u>4,000</u>	4,000

Latrines.

Constructing 35 seats public latrines at Rs. 220 per seat	7,700	
Total	<u>7,700</u>	7,700

Re-housing Municipal Sweepers.

	Rs.	
Dismantling existing insanitary structure, Rs. 50	50	
Rebuilding 10 two-roomed (10' x 10' + 10' x 7' verandah) tenements, at Rs. 600 per tenement	6,000	
Total	<u>6,050</u>	6,050

APPENDIX No. 7.—IMPROVEMENT OF BAZAAR AREA—*contd.**Municipal Cattle Shed.*

	Rs.	
Dismantling existing cattle shed Rs. 100 lump . . .	100	
Reconstructing cattle shed to accommodate 20 cattle, 2,500 s.ft. at Rs. 4 per s. ft. of plinth	10,000	
	<u>10,100</u>	
		10,100

Gardens and tree-planting.

	Rs.	
Laying out a garden on the slopes of the main drain and plant- ing palm trees at intervals of 20' Rs. 500 lump	500	
	<u>500</u>	
		500
Total		<u>5,550</u>
	Rs.	
Establishment charges on works at 10 per cent	5,153	
	<u>5,153</u>	
		5,153
Total estimated outlay on works		<u>50,653</u>

A. E. MIRAMS,

Consulting Surveyor to the Government of Bombay.

POONA, }
1st March 1923. }

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